



IPCC Glossary

#semanticClimate Research Demo

by Team #semanticClimate



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IPCC Glossary: #semanticClimate Research Demo

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IPCC Glossary

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IPCC Glossary: <https://apps.ipcc.ch/glossary/>

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Sixth Assessment Cycle (AR6)

Weyer, N. M. (Ed.). (2019). Special Report on the Ocean and Cryosphere in a Changing Climate Glossary (Sixth Assessment Cycle (AR6)). IPCC. <https://www.ipcc.ch/report/srocc>

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*At present paste this under the "**semanticClimate**" header. We are developing a template to help organize where to put annotations*

to add a link to Wikipedia. Find the page, copy the URL and then paste in as <p>Wikipedia</p>

To add language equivalents use the style:

```
<div>
<p>Translations</p>
<ul>
<li lang="de">DE: ablation</li>
<li lang="hi">HI: पृथक करना</li>
</ul>
</div>
```

Translations

- DE: ablation
- HI: पृथक करना

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A

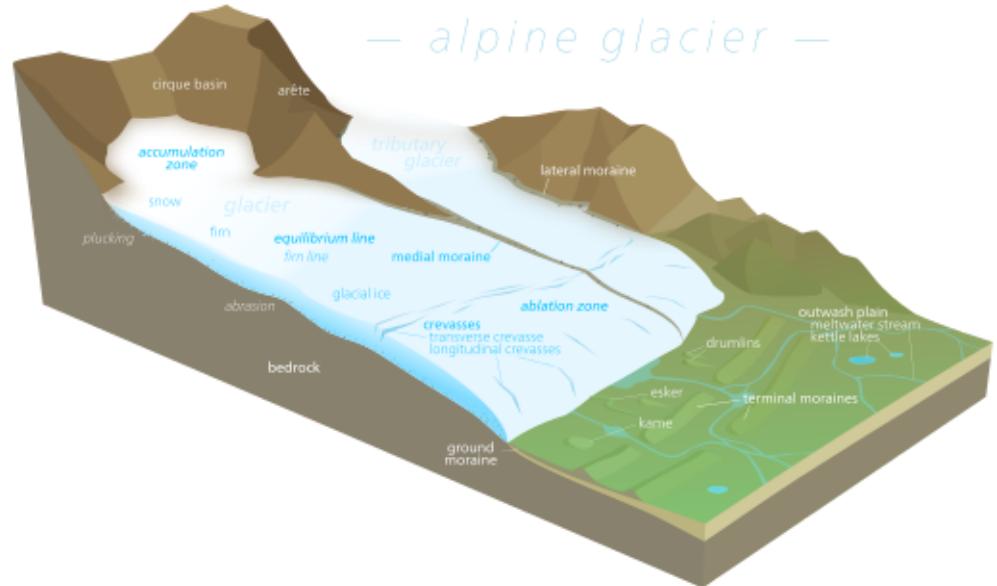
ablation

All processes that reduce the mass of a *glacier*, *ice sheet*, or snow cover.

The main processes are melting, and for glaciers also *calving* (or, when the glacier nourishes an *ice shelf*, *discharge of ice across the grounding line*), but other processes such as sublimation and loss of wind-blown snow can also contribute to ablation. Ablation also refers to the mass lost by any of these processes.

Parent-term

- Mass balance/budget (of glaciers or ice sheets)



semanticClimate annotation

Translations

- DE: ablation
- HI: पृथक करना

WGI
of glaciers, ice sheets, or snow cover

abrupt change

A change in the system that is substantially faster than the typical rate of the changes in its history.

semanticClimate annotation

Translations

- HI: अचानक परिवर्तन

WGI,WGII

abrupt climate change

A large-scale *abrupt change* in the *climate system* that takes place over a few decades or less, persists (or is anticipated to persist) for at least a few decades and causes substantial *impacts* in *human and/or natural systems*.

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From Wikipedia An abrupt climate change occurs when the climate system is forced to transition at a rate that is determined by the climate system energy-balance.

Translations

- HI: अचानक जलवायु परिवर्तन

WGI,WGII

acceptability of policy or system change

The extent to which a policy or system change is evaluated unfavourably or favourably, or rejected or supported, by members of the general public (public acceptability) or politicians or governments (political acceptability).

Acceptability may vary from totally unacceptable/fully rejected to totally acceptable/fully supported; individuals may differ in how acceptable policies or system changes are believed to be.

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WGIII

access

See Access under *Food Security*

Parent-term

- Food security

semanticClimate annotation

WGII
to food

access to modern energy services

Access to clean, reliable and affordable energy services for cooking, heating, lighting, communications, and productive uses.

semanticClimate annotation

WGIII

acclimatisation

A change in functional or morphological traits occurring once or repeatedly (e.g., seasonally) during the lifetime of an individual organism in its natural environment.

Through acclimatisation, the individual maintains performance across a range of environmental conditions. For a clear differentiation between

findings in laboratory and field studies, the term ‘acclimation’ is used in ecophysiology for the respective phenomena when observed in well-defined experimental settings. The term ‘(adaptive) plasticity’ characterises the generally limited scope of changes in phenotype that an individual can reach through the process of acclimatisation.

[Wikipedia entry: Acclimatisation](#)

semanticClimate annotation

Translations

- HI: ພ່ຽນຄູ່ລານ

WGII

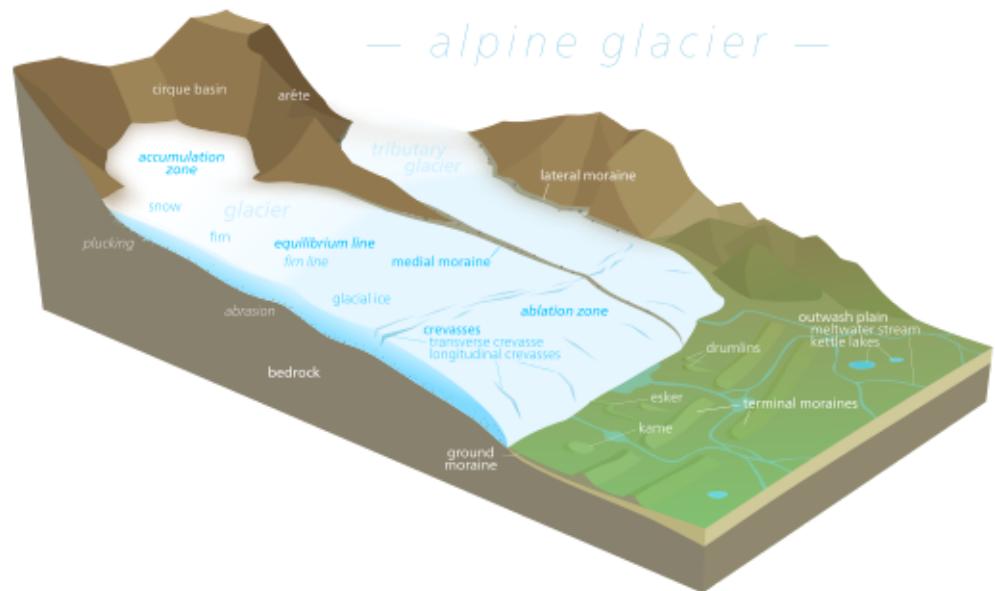
accumulation

All processes that add to the mass of a *glacier*, an *ice sheet*, or snow cover.

The main process of accumulation is snowfall. Accumulation also includes deposition of hoar, freezing rain, other types of solid precipitation, gain of wind-blown snow, avalanching, and basal accumulation (often beneath floating ice).

Parent-term

- Mass balance/budget (of glaciers or ice sheets)

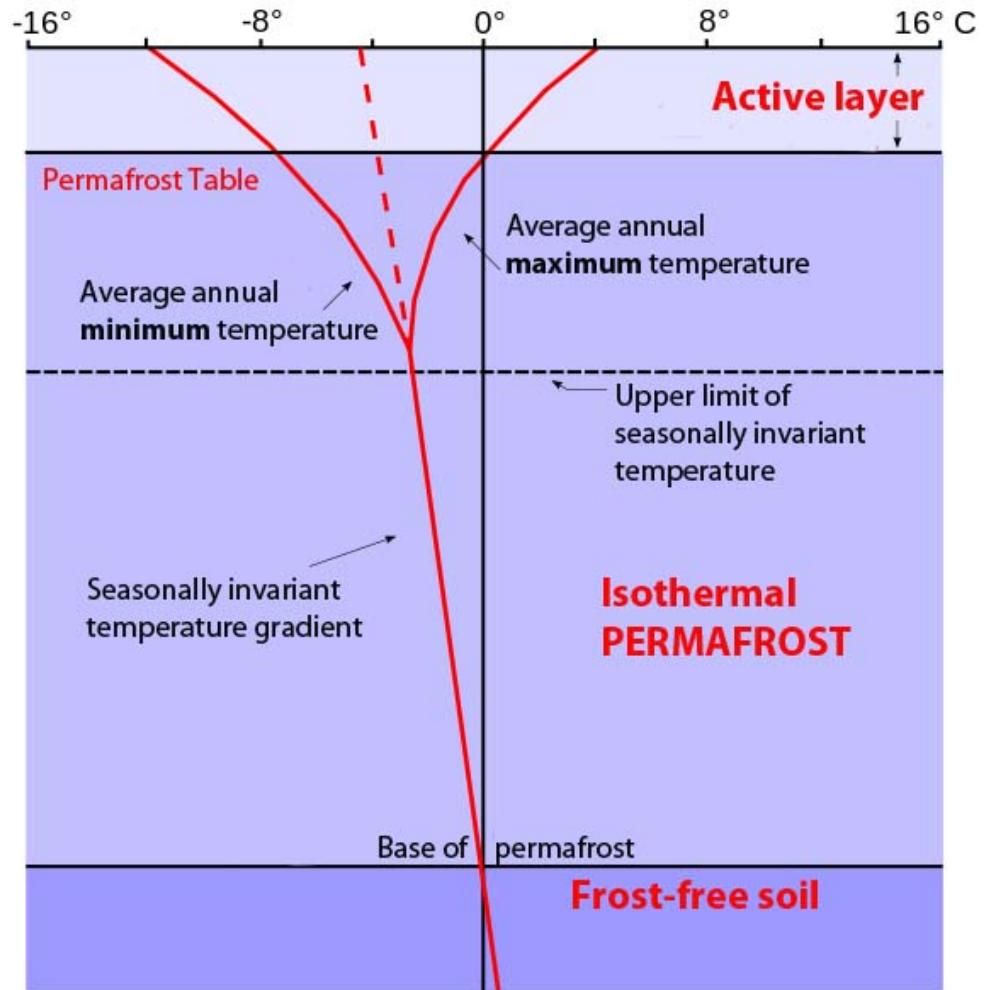


semanticClimate annotation

WGI, WGII
of glaciers, ice sheets or snow cover

active layer

Layer of ground above *permafrost* subject to annual thawing and freezing.



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Translations

- HI: सक्रिय परत

WGI

acute food insecurity

Acute food insecurity is a situation which can occur at any time with a severity that threatens lives, livelihoods or both, regardless of the causes, context or duration, as a result of shocks risking determinants of food security and nutrition, and used to assess the need for humanitarian action (IPC Global Partners, 2019).

semanticClimate annotation

Translations

- HI: तीव्र खाद्य असुरक्षा

WGII

adaptation

In *human systems*, the process of adjustment to actual or expected *climate* and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.

Sub-terms

- Adaptation deficit
- Adaptation gap
- Adaptation limits
- Adaptation needs
- Adaptation options
- Autonomous adaptation
- Community-based adaptation
- Ecosystem-based adaptation (EbA)
- Evolutionary adaptation
- Incremental adaptation
- Transformational adaptation

semanticClimate annotation

Translations

- HI: अनुकूलन

WGIII,WGII,WGI

Adaptation Fund

A Fund established under the Kyoto Protocol in 2001 and officially launched in 2007.

The Fund finances adaptation projects and programmes in developing countries that are Parties to the Kyoto Protocol. Financing comes mainly from sales of Certified Emissions Reductions (CERs) and a share of proceeds amounting to 2 % of the value of CERs issued each year for Clean Development Mechanism (CDM) projects. The Adaptation Fund can also receive funds from governments, the private sector, and individuals.

semanticClimate annotation

From Wikipedia The Adaptation Fund is an international fund that finances projects and programs aimed at helping developing countries to adapt to the harmful effects of climate change. It is set up under the Kyoto Protocol of the United Nations Framework Convention on Climate Change (UNFCCC).

Translations

- HI: अनुकूलन कोष

WGII

adaptation behaviour

Human actions that directly or indirectly affect the risks of climate change impacts.

Parent-term

- Human behaviour

semanticClimate annotation

Translations

- HI: अनुकूलन व्यवहार

WGII

adaptation deficit

The gap between the current state of a system and a state that minimises adverse impacts from existing climate conditions and variability.

Parent-term

- Adaptation

semanticClimate annotation

Translations

- HI: अनुकूलन घाटा

WGII

adaptation gap

The difference between actually implemented adaptation and a societally set goal, determined largely by preferences related to tolerated climate change impacts and reflecting resource limitations and competing priorities (UNEP, 2014; UNEP, 2018).

Parent-term

- Adaptation

semanticClimate annotation

Translations

- HI: अनुकूलन अंतराल

WGII

adaptation limits

The point at which an actor's objectives (or system needs) cannot be secured from intolerable risks through adaptive actions.

- Hard adaptation limit – No adaptive actions are possible to avoid intolerable risks.
- Soft adaptation limit – Options may exist but are currently not available to avoid intolerable risks through adaptive action.

Parent-term

- Adaptation

semanticClimate annotation

Translations

- HI: अनुकूलन सीमा

WGIII,WGII

adaptation needs

The circumstances requiring action to ensure the safety of populations and the security of assets in response to climate impacts.

Parent-term

- Adaptation

semanticClimate annotation

WGII

adaptation opportunity

Factors that make it easier to plan and implement adaptation actions, that expand adaptation options, or that provide ancillary co-benefits.

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adaptation options

The array of strategies and measures that are available and appropriate for addressing *adaptation*.

They include a wide range of actions that can be categorised as structural, *institutional*, ecological or behavioural.

Parent-term

- Adaptation

semanticClimate annotation

WGIII,WGII,WGI

adaptation pathways

A series of *adaptation* choices involving trade-offs between short-term and long-term goals and values.

These are processes of deliberation to identify solutions that are meaningful to people in the context of their daily lives and to avoid potential *maladaptation*.

Parent-term

- Pathways

semanticClimate annotation

WGIII,WGII

adaptive capacity

The ability of systems, *institutions*, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences (MA, 2005).

References

- MA, 2005: Appendix D: Glossary. In: Ecosystems and Human Well-being: Current States and Trends. Findings of the Condition and Trends Working Group [Hassan, R., R. Scholes, and N. Ash (eds.)]. Millennium Ecosystem Assessment (MEA). Island Press, Washington, DC, USA, pp. 893–900.

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From Wikipedia Adaptive capacity relates to the capacity of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences. In the context of ecosystems, adaptive capacity is determined by genetic diversity of species, biodiversity of particular ecosystems in specific landscapes or biome regions.

WGIII,WGII,WGI

adaptive governance

Adjusting to changing conditions, such as climate change, through governance interactions that seek to maintain a desired state in a social-ecological system.

Parent-term

- Governance

semanticClimate annotation

[Wikipedia](#)

WGII,WGIII

adaptive management

A process of iteratively planning, implementing and modifying strategies for managing resources in the face of uncertainty and change.

Adaptive management involves adjusting approaches in response to observations of their effect on, and changes in, the system brought on by resulting feedback effects and other variables.

semanticClimate annotation

From Wikipedia Adaptive management, also known as adaptive resource management or adaptive environmental assessment and management, is a structured, iterative process of robust decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring.

WGII

added value

Improvement of the representation of some climatic aspects by one methodology compared to another methodology.

For instance, downscaling a coarse resolution global climate model may improve the representation of regional climate in complex terrain.

semanticClimate annotation

WGI

additionality

The property of being additional.

Mitigation is additional if the greenhouse gas emission reductions or removals would not have occurred in the absence of the associated policy intervention or activity.

[Note: Additionality is one of several key criteria used to ensure the environmental integrity of *Offsets (in climate change mitigation)*].

semanticClimate annotation

From Wikipedia Adaptive management, also known as adaptive resource management or adaptive environmental assessment and management, is a structured, iterative process of robust decision making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring.

WGIII

adjustments

The response to an agent perturbing the *climate system* that is driven directly by the agent, independently of any change in *global surface temperature*.

For example, *carbon dioxide* and *aerosols*, by altering internal heating and cooling rates within the *atmosphere*, can each cause changes to cloud cover and other variables thereby producing an *effective radiative forcing* even in the absence of any surface warming or cooling. Adjustments are usually rapid in the sense that they begin to occur right away, before *climate feedbacks* which are driven by global surface warming (although some adjustments may still take significant time to proceed to completion, for example those involving vegetation or *ice sheets*).

semanticClimate annotation

WGI

in relation to effective radiative forcing

advection

Transport of water or air along with its properties (e.g., temperature, chemical tracers) by winds or currents.

Regarding the general distinction between advection and *convection*, the former describes transport by large-scale motions of the *atmosphere* or ocean, while convection describes the predominantly vertical, locally induced motions.

semanticClimate annotation

From Wikipedia In the field of physics, engineering, and earth sciences, advection is the transport of a substance or quantity by bulk motion of a fluid. The properties of that substance are carried with it. Generally the majority of the advected substance is also a fluid. The properties that are carried with the advected substance are conserved properties such as energy.

WGI

adverse side-effect

A negative effect that a policy or measure aimed at one objective has on another objective, thereby potentially reducing the net benefit to society or the environment.

semanticClimate annotation

WGIII,WGII

aerosol

A suspension of airborne solid or liquid particles, with typical particle size in the range of a few nanometres to several tens of micrometres and atmospheric lifetimes of up to several days in the *troposphere* and up to years in the *stratosphere*.

The term aerosol, which includes both the particles and the suspending gas, is often used in this report in its plural form to mean 'aerosol particles'. Aerosols may be of either natural or *anthropogenic* origin in the troposphere; stratospheric aerosols mostly stem from volcanic eruptions. Aerosols can cause an *effective radiative forcing* directly through scattering and absorbing radiation (*aerosol-radiation interaction*), and indirectly by acting as *cloud condensation nuclei* or ice nucleating

particles that affect the properties of clouds (*aerosol–cloud interaction*), and upon deposition on snow- or ice-covered surfaces. Atmospheric aerosols may be either emitted as primary particulate matter or formed within the atmosphere from gaseous precursors (secondary production). Aerosols may be composed of sea salt, organic carbon, *black carbon (BC)*, mineral species (mainly desert dust), sulphate, nitrate and ammonium or their mixtures.

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From Wikipedia An aerosol is a suspension of fine solid particles or liquid droplets in air or another gas.

Translations

- HI: वायु-विलय पात्र

WGI,WGII,WGIII

aerosol–cloud interaction

A process by which a perturbation to *aerosol* affects the microphysical properties and evolution of clouds through the aerosol role as *cloud condensation nuclei* or ice nuclei, particularly in ways that affect radiation or precipitation; such processes can also include the effect of clouds and precipitation on aerosol.

The aerosol perturbation can be *anthropogenic* or come from some natural *source*. The *radiative forcing* from such interactions has traditionally been attributed to numerous indirect aerosol effects, but in this report, only two levels of radiative forcing (or effect) are distinguished:

Sub-terms

- Effective radiative forcing (or effect) due to aerosol–cloud interactions (ERFaci)
- Instantaneous radiative forcing (or effect) due to aerosol–cloud interactions (IRFaci)

semanticClimate annotation

WGI

aerosol effective radiative forcing

The total effective radiative forcing due to both aerosol–cloud and aerosol–radiation interactions is denoted aerosol effective radiative forcing (ERFari+aci).

Parent-term

- Aerosol–radiation interaction

semanticClimate annotation

WGI

ERFari+aci

aerosol optical depth

Wavelength-dependent aerosol optical depth is a measure of the *aerosol* contribution to extinction of top-of-the-atmosphere solar intensity measured at the ground.

AOD is unitless.

Sub-terms

- Fine-mode aerosol optical depth

semanticClimate annotation

WGI

AOD

aerosol-radiation interaction

An interaction of *aerosol* directly with radiation produces *radiative effects*.

In this report, two levels of *radiative forcing* (or effect) are distinguished:

Sub-terms

- Aerosol effective radiative forcing (ERF_{aci})
- Effective radiative forcing (or effect) due to aerosol–radiation interactions (ERF_{ari})
- Instantaneous radiative forcing (or effect) due to aerosol–radiation interactions (IRF_{ari})

semanticClimate annotation

WGI

afforestation

Conversion to *forest* of land that historically has not contained forests.

[Note: For a discussion of the term forest and related terms such as afforestation, reforestation and deforestation, see the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and their 2019 Refinement, and information provided by the United Nations Framework Convention on Climate Change (IPCC 2006, 2019; UNFCCC 2021a, b).]

References

- UNFCCC, 2021: Reporting and accounting of LULUCF activities under the Kyoto Protocol. United Nations Framework Convention on Climate Change (UNFCCC), Bonn, Germany. Retrieved from: <https://unfccc.int/topics/land-use/workstreams/land-use-land-use-change-and-forestry-lulucf/reporting-and-accounting-of-lulucf-activities-under-the-kyoto-protocol>
- UNFCCC, 2021: Reporting and Review under the Paris Agreement. United Nations Framework Convention on Climate Change (UNFCCC), Bonn, Germany. Retrieved from: <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-paris-agreement>

semanticClimate annotation



From Wikipedia Afforestation is the establishment of a forest or stand of trees (forestation) in an area where there was no recent tree cover.

Translations

- HI: वनरोपण

WGI,WGIII,WGII

agreement

In this report, the degree of agreement within the scientific body of knowledge on a particular finding is assessed based on multiple lines of evidence (e.g., mechanistic understanding, theory, data, models, expert judgement) and expressed qualitatively (Mastrandrea et al., 2010).

semanticClimate annotation

Translations

- HI: समझौता

WGIII,WGII,WGI

agricultural and ecological drought

Depending on the affected biome: a period with abnormal soil moisture deficit, which results from combined shortage of precipitation and excess evapotranspiration, and during the growing season impinges on crop production or ecosystem function in general.

Parent-term

- Drought

semanticClimate annotation

WGI,WGII

Agriculture, Forestry and Other Land Use

In the context of national greenhouse gas (GHG) inventories under the *United Nations Framework Convention on Climate Change (UNFCCC)*, AFOLU is the sum of the GHG inventory sectors Agriculture and Land Use, Land-Use Change and Forestry (LULUCF); see the 2006 IPCC Guidelines for National GHG Inventories for details.

Given the difference in estimating the ‘anthropogenic’ *carbon dioxide (CO₂)* removals between countries and the global modelling community, the land-related net GHG emissions from global models included in this report are not necessarily directly comparable with LULUCF estimates in national GHG Inventories.

semanticClimate annotation

WGIII
AFOLU

agroecology

The science and practice of applying ecological concepts, principles and knowledge (i.e., the interactions of, and explanations for, the diversity, abundance and activities of organisms) to the study, design and management of sustainable agroecosystems.

It includes the roles of human beings as a central organism in agroecology by way of social and economic processes in farming systems. Agroecology examines the roles and interactions among all relevant biophysical, technical and socio-economic components of farming systems and their surrounding landscapes (IPBES, 2019).

semanticClimate annotation

From Wikipedia Agroecology is an academic discipline that studies ecological processes applied to agricultural production

systems. Bringing ecological principles to bear can suggest new management approaches in agroecosystems.

Translations

- HI: कृषिपारिस्थितिकी

WGII,WGIII

agroforestry

Collective name for land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence.

In agroforestry systems there are both ecological and economical interactions between the different components. Agroforestry can also be defined as a dynamic, ecologically-based, natural resource management system that, through the integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels (FAO, 2015a).

References

- FAO, 2015a: Agroforestry. Food and Agriculture Organization of the United Nations (FAO).Retrieved from:
<http://www.fao.org/forestry/agroforestry/80338/en/>.

semanticClimate annotation



From Wikipedia Agroforestry (or agro-sylviculture) is a land use management system in which combinations of trees or shrubs are grown around or among crops or pastureland.

Translations

- HI: कृषि वानिकी

WGII

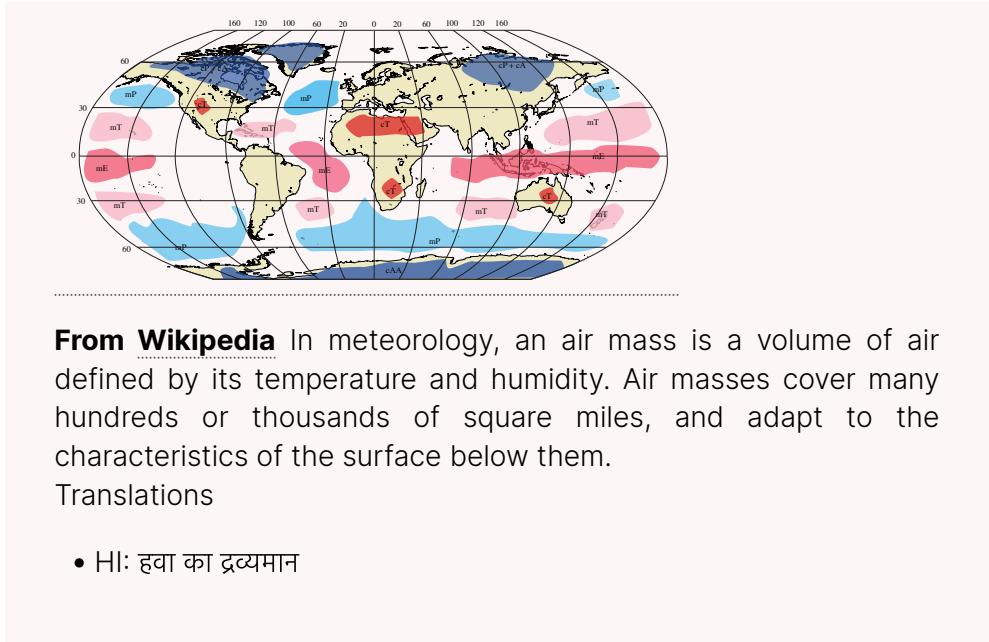
air mass

A widespread body of air, the approximately homogeneous properties of which (i) have been established while that air was situated over a particular *region* of the Earth's surface, and (ii) undergo specific modifications while in transit away from the source region (AMS, 2021).

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from: <http://glossary.ametsoc.org>.

semanticClimate annotation



WGI

air pollution

Degradation of air quality with negative effects on human health or the natural or built environment due to the introduction, by natural processes or human activity, into the *atmosphere* of substances (gases, *aerosols*) which have a direct (primary pollutants) or indirect (secondary pollutants) harmful effect.



From Wikipedia Air pollution is the contamination of air due to the presence of substances in the atmosphere that are harmful to the health of humans and other living beings, or cause damage to the climate or to materials.

Translations

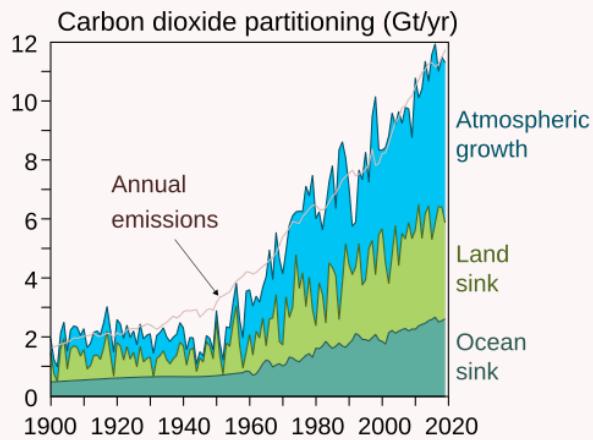
- HI: वायु प्रदूषण

WGIII, WGII, WGI

airborne fraction

The fraction of total *carbon dioxide (CO₂)* emissions (from *fossil fuels* and *land-use change*) remaining in the *atmosphere*.

semanticClimate annotation



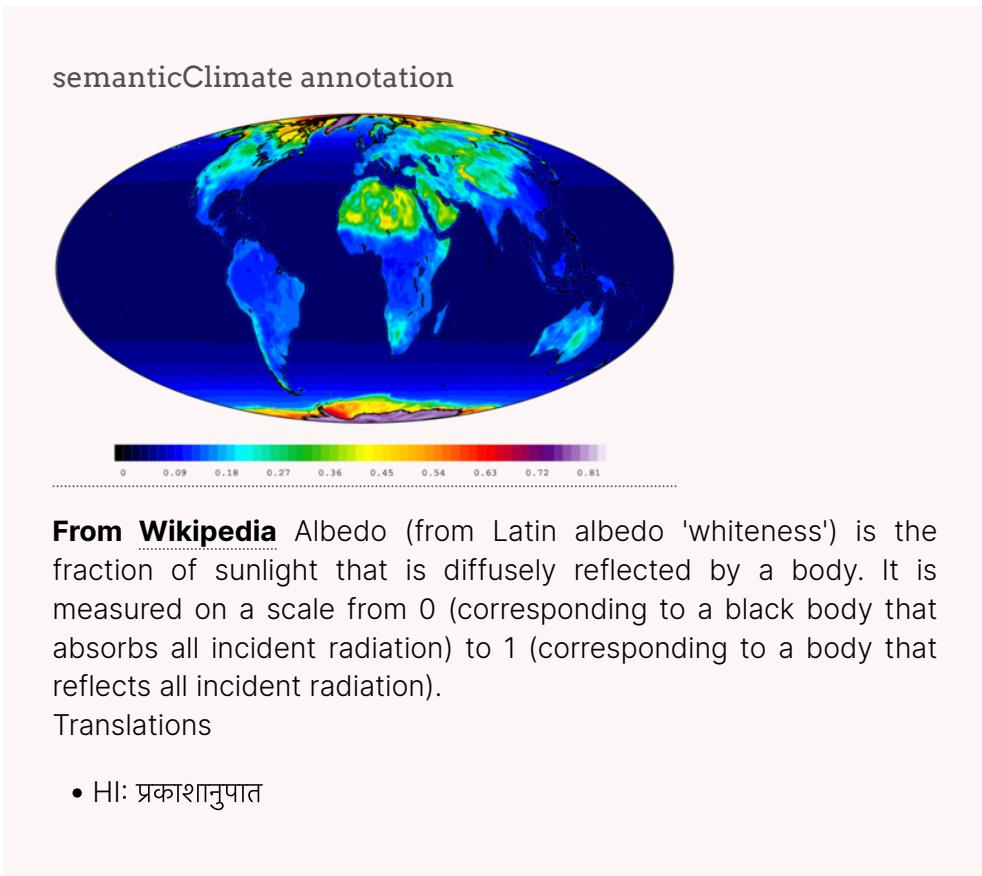
From Wikipedia The airborne fraction is a scaling factor defined as the ratio of the annual increase in atmospheric CO₂ to the CO₂ emissions from human sources.

WGI

albedo

The proportion of sunlight (*solar radiation*) reflected by a surface or object, often expressed as a percentage.

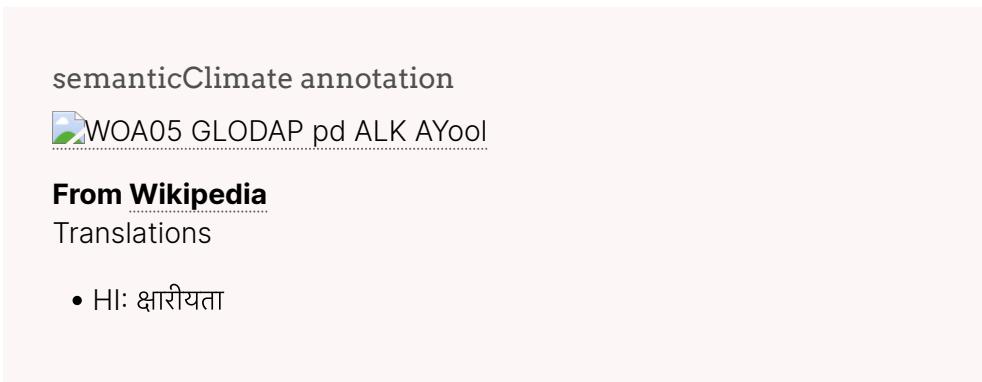
Clouds, snow and ice usually have high albedo; soil surfaces cover the albedo range from high to low; vegetation in the dry season and/or in *arid zones* can have high albedo, whereas photosynthetically active vegetation and the *ocean* have low albedo. The Earth's planetary albedo changes mainly through changes in cloudiness, snow, ice, leaf area and *land cover*.



WGI, WGIII, WGII

alkalinity

Seawater acid–base system.



WGI

altimetry

A technique for measuring the height of the Earth's surface with respect to the geocentre of the Earth within a defined terrestrial reference frame (geocentric sea level).

semanticClimate annotation

WGI

annular modes

Hemispheric scale patterns of atmospheric variability characterized by opposing and synchronous fluctuations in sea-level pressure between the polar caps and mid-latitudes, with a structure exhibiting a high degree of zonal symmetry, and with no real preferred time scales ranging from days to decades.

In each hemisphere, these fluctuations reflect changes in the latitudinal position and strength of the mid-latitude jets and associated storm tracks. Annular modes are defined as the leading mode of variability of extratropical sea-level pressure or geopotential heights and are known as the *Northern Annular Mode (NAM)* and *Southern Annular Mode (SAM)* in the two hemispheres, respectively.

Sub-terms

- Northern Annular Mode (NAM)
- Southern Annular Mode (SAM)

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WGI

anomaly

The deviation of a variable from its value averaged over a *reference period*.

semanticClimate annotation

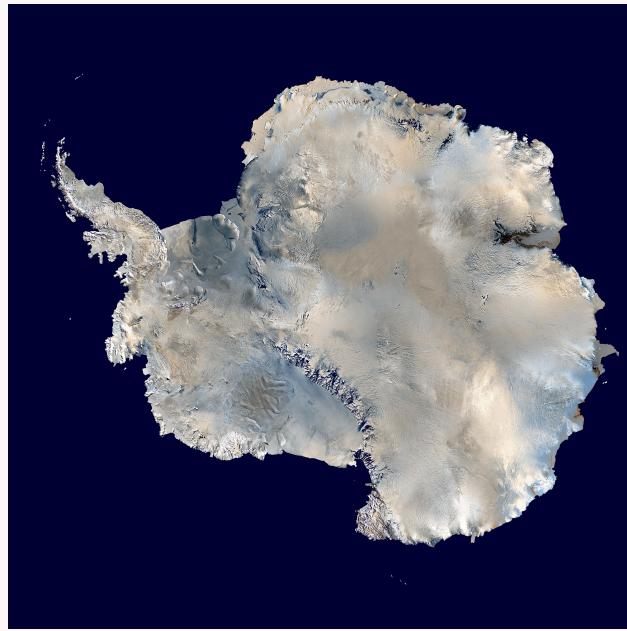
WGI,WGIII,WGII

Antarctic Ice Sheet

There are only two ice sheets in the modern world, one on Greenland and one on Antarctica.

The latter is divided into the East Antarctic Ice Sheet (EAIS), the West Antarctic Ice Sheet (WAIS) and the Antarctic Peninsula Ice Sheet. During glacial periods, there were other ice sheets.

semanticClimate annotation



From Wikipedia The Antarctic ice sheet is one of the two polar ice caps of Earth. It covers about 98% of the Antarctic continent and is the largest single mass of ice on Earth, with an average thickness of over 2 kilometers.

Translations

- HI: अंटार्कटिक बर्फ की चादर

WGI
AIS

anthropocene

A proposed new geological epoch resulting from significant human-driven changes to the structure and functioning of the Earth system, including the climate system.

Originally proposed in the Earth system science community in 2000, the proposed new epoch is undergoing a formalisation process within the geological community based on the stratigraphic evidence that human activities have changed the Earth system to the extent of forming geological deposits with a signature that is distinct from those of the *Holocene*, and which will remain in the geological record. Both the

stratigraphic and Earth system approaches to defining the Anthropocene consider the mid-20th century to be the most appropriate starting date (Steffen et al., 2016), although others have been proposed and continue to be discussed. The Anthropocene concept has already been informally adopted by diverse disciplines and the public to denote the substantive influence of humans on the Earth system.

References

- Steffen, W., Leinfelder, R., Zalasiewicz, J., Waters, C.N., Williams, M., Summerhayes, C., Barnosky, A.D., Cearreta, A., Crutzen, P., Edgeworth, M., Ellis, E.C., Fairchild, I.J., Galuszka, A., Grinevald, J., Haywood, A., Ivar do Sul, J., Jeandel, C., McNeill, J., Odada, E., Oreskes, N., Revkin, A., Richter, D.d., Syvitski, J., Vidas, D., Wagreich, M., Wing, S.L., Wolfe, A.P. and Schellnhuber, H. (2016), Stratigraphic and Earth System approaches to defining the Anthropocene. *Earth's Future*, 4: 324-345.
<https://doi.org/10.1002/2016EF000379>

semanticClimate annotation



From Wikipedia The Anthropocene (/ənθrəpəsi:n, æn'θrɒpə-/ AN-thrə-pə-seen, an-THROP-ə-)[1][2][3][failed verification] is a proposed geological epoch dating from the commencement of significant human impact on Earth's geology and ecosystems, including, but not limited to, human-caused climate change.
Translations

- HI: ၐန္တာပြေးရီ

WGII,WGI

anthropogenic

Resulting from or produced by human activities.

semanticClimate annotation

Translations

- HI: मानवजनित

WGI,WGIII,WGII

anthropogenic emissions

Emissions of greenhouse gases (GHGs), precursors of GHGs and aerosols caused by human activities.

These activities include the burning of fossil fuels, deforestation, land use and land use changes (LULUC), livestock production, fertilisation, waste management, and industrial processes.

semanticClimate annotation

Translations

- HI: मानवजनित उत्सर्जन

WGIII,WGII,WGI

anthropogenic removals

The withdrawal of greenhouse gases (GHGs) from the atmosphere as a result of deliberate human activities.

These include enhancing biological sinks of CO₂ and using chemical engineering to achieve long term removal and storage. Carbon capture and storage (CCS), which alone does not remove CO₂ from the atmosphere, can help reduce atmospheric CO₂ from industrial and energy-related sources if it is combined with bioenergy production (BECCS), or if CO₂ is captured from the air directly and stored (DACCs).

[Note: In the 2006 IPCC Guidelines for National GHG Inventories (IPCC, 2006), which are used in reporting of emissions to the UNFCCC, 'anthropogenic' land-related GHG fluxes are defined as all those occurring on 'managed land', i.e. 'where human interventions and practices have been applied to perform production, ecological or social functions'. However, some removals (e.g. removals associated with CO₂ fertilisation and N deposition) are not considered as 'anthropogenic', or are referred to as 'indirect' anthropogenic effects, in some of the scientific literature assessed in this report. As a consequence, the land-related net GHG

emission estimates from global models included in this report are not necessarily directly comparable with Land Use, Land-Use Change and Forestry (LULUCF) estimates in national GHG Inventories.]

semanticClimate annotation

Translations

- HI: मानवजनित निष्कासन

WGIII,WGI

anthropogenic subsidence

Downward motion of the land surface induced by anthropogenic drivers (e.g., loading, extraction of hydrocarbons and/or groundwater, drainage, mining activities) causing sediment compaction or subsidence/deformation of the sedimentary sequence, or oxidation of organic material, thereby leading to relative sea level rise.

semanticClimate annotation

Translations

- HI: मानवजनित अवतलन

WGII,WGI

apparent hydrological sensitivity

The change in global mean precipitation per degree Celsius of global mean surface air temperature (GSAT) change with units of % per °C, although it can also be calculated as Wm⁻² per °C.

semanticClimate annotation

WGI

na

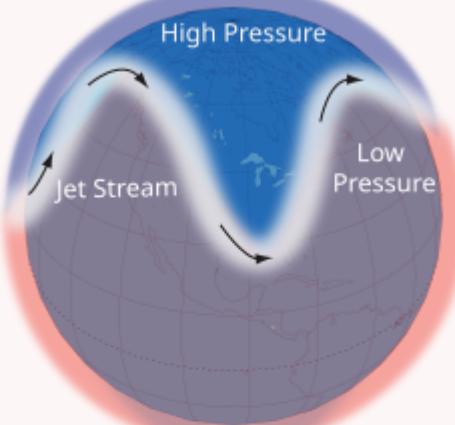
arctic oscillation

See Northern Annular Mode (NAM) (under Annular modes).

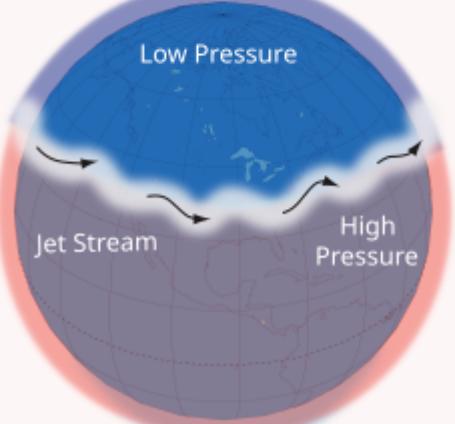
semanticClimate annotation

Arctic Oscillation

Negative Phase



Positive Phase



From Wikipedia The Arctic oscillation (AO) or Northern Annular Mode/Northern Hemisphere Annular Mode (NAM) is a weather phenomenon at the Arctic pole north of 20 degrees latitude. It is an important mode of climate variability for the Northern Hemisphere.

Translations

- HI: আর্কটিক দোলন

WGI
AO

arid zone

Areas where vegetation growth is severely constrained due to limited water availability.

For the most part, the native vegetation of arid zones is sparse. There is high rainfall variability, with annual averages below 300 mm. Crop farming in arid zones requires irrigation.

semanticClimate annotation



From Wikipedia Drylands are defined by a scarcity of water. Drylands are zones where precipitation is balanced by evaporation from surfaces and by transpiration by plants (evapotranspiration).
Translations

- HI: शुष्कभूमि

WGI,WGII

aridity

The state of a long-term climatic feature characterised by low average precipitation or available water in a region.

Aridity generally arises from widespread persistent *atmospheric* subsidence or anticyclonic conditions, and from more localised subsidence in the lee side of mountains (adapted from Ogallal and Gbeckor-Kove, 1989; Türkeş, 1999).

semanticClimate annotation

Translations

- HI: शुष्कता

WGII,WGI

artificial ocean upwelling

A potential *carbon dioxide removal (CDR)* method that aims to artificially pump up cooler, nutrient-rich waters from deep in the *ocean* to the surface.

The aim is to stimulate phytoplankton activity and thereby increase ocean CO₂ uptake.

semanticClimate annotation

Translations

- HI: कृत्रिम महासागर का उभार

WGI
AOUpw

assets

Natural or human-made resources that provide current or future utility, benefit, economic or intrinsic value to natural or human systems.

semanticClimate annotation

From Wikipedia

Translations

- HI: संपत्ति

WGI

Atlantic Meridional Mode

The Atlantic Meridional Mode (AMM) refers to the interannual to *decadal variability* of the cross-equatorial *sea surface temperature* gradients and surface wind anomalies in the tropical Atlantic.

It modulates the strength and latitudinal shifts of the *Inter-tropical Convergence Zone (ITCZ)*, which impacts regional rainfall over Northeast Brazil and Atlantic hurricane activity. See Section AIV.2.5 in Annex IV of the AR6 WGI report.

Parent-term

- Tropical Atlantic Variability (TAV)

semanticClimate annotation

WGI
AMM

Atlantic Meridional Overturning Circulation

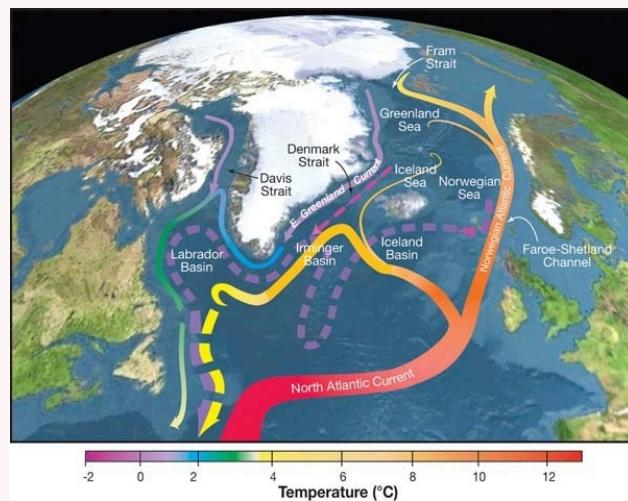
The main current system in the South and North Atlantic Oceans.

AMOC transports warm upper-ocean water northwards and cold, deep water southwards, as part of the global ocean circulation system. Changes in the strength of AMOC can affect other components of the *climate system*.

Parent-term

- Meridional overturning circulation (MOC)

semanticClimate annotation



From Wikipedia The Atlantic meridional overturning circulation (AMOC) is part of a global thermohaline circulation in the oceans and is the zonally integrated component of surface and deep currents in the Atlantic Ocean.

Translations

- HI: अटलांटिक भूमध्यरेखीय प्रतिवर्ती परिसंचरण

WGI
AMOC

Atlantic Multi-decadal Oscillation

A multi-decadal (65- to 75-year) fluctuation in the North Atlantic, in which sea surface temperatures showed warm phases during roughly 1860 to 1880 and 1930 to 1960 and cool phases during 1905 to 1925 and 1970 to 1990 with a range of approximately 0.4°C.

See AMO Index in WGI AR5 Box 2.5.

semanticClimate annotation

Translations

- HI: अटलांटिक बहु-दशकीय दोलन

WGI
AMO

Atlantic Multi-decadal Variability

Large-scale fluctuations observed from one decade to the next in a variety of instrumental records and *proxy* reconstructions over the entire North Atlantic ocean and surrounding continents.

Fingerprints of AMV can be found at the surface ocean, which is characterized by swings in basin-scale *sea surface temperature* anomalies reflecting the interaction with the *atmosphere*. The positive phase of the AMV is characterized by anomalous warming over the entire North Atlantic, with the strongest amplitude in the subpolar gyre and along sea-ice margin zones in the Labrador Sea and Greenland/Barents Sea and in the subtropical North Atlantic basin to a lower extent. In the AR6 WGI report, the term AMV is preferred to Atlantic Multi-decadal Oscillation (AMO) used in previous IPCC reports because there is no preferred time scale of decadal variability as the term oscillation would indirectly imply. See Section AIV.2.7 in Annex IV of the AR6 WGI report.

semanticClimate annotation

Translations

- HI: अटलांटिक बहु-दशकीय परिवर्तनशीलता

WGI

Atlantic Zonal Mode

An equatorial coupled mode in the Atlantic similar to *El Niño–Southern Oscillation (ENSO)* in the Pacific, and therefore sometimes referred to as the Atlantic Niño.

The AZM is associated with *sea surface temperature* anomalies near the equatorial Atlantic and rainfall disturbances over the African monsoon domain. Its variations are mostly observed in the interannual scale. It is called also Atlantic equatorial mode. See Section AIV.2.5 in Annex IV of the AR6 WGI report.

Parent-term

- Tropical Atlantic Variability (TAV)

semanticClimate annotation

WGI
AZM

atmosphere

The gaseous envelope surrounding the Earth, divided into five layers – the *troposphere* which contains half of the Earth's atmosphere, the *stratosphere*, the mesosphere, the thermosphere, and the exosphere, which is the outer limit of the atmosphere.

The dry atmosphere consists almost entirely of nitrogen (78.1% volume mixing ratio) and oxygen (20.9% volume mixing ratio), together with a number of trace gases, such as argon (0.93 % volume mixing ratio), helium and radiatively active *greenhouse gases (GHGs)* such as *2)carbon dioxide (CO* (0.04% volume mixing ratio), *4)methane (CH₄*, *20)nitrous oxide (N₂O* and *3)ozone (O₃*). In addition, the atmosphere contains the GHG water vapour (H₂O), whose concentrations are highly variable (0–5% volume mixing ratio) as the sources (*evapotranspiration*) and sinks (precipitation) of water vapour show large spatio-temporal variations, and atmospheric temperature exerts a strong constraint on the amount of water vapour an air parcel can hold. The atmosphere also contains clouds and *aerosols*.

semanticClimate annotation



From Wikipedia An atmosphere (from Ancient Greek ἀτμός (atmós) 'vapour, steam', and σφαῖρα (sphaîra) 'sphere') is a layer of gas or layers of gases that envelop a planet, and is held in place by the gravity of the planetary body.

Translations

- HI: वायुमंडल

WGI, WGIII, WGII

atmospheric boundary layer

The atmospheric layer adjacent to the Earth's surface that is affected by friction against that boundary surface, and possibly by transport of heat and other variables across that surface (AMS, 2021).

The lowest 100 m of the boundary layer (about 10% of the boundary layer thickness), where mechanical generation of turbulence is dominant, is called the surface boundary layer or surface layer.

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from: <http://glossary.ametsoc.org>.

semanticClimate annotation

Translations

- HI: वायुमंडलीय सीमा परत

WGI

atmospheric rivers

Long, narrow (up to a few hundred km wide), shallow (up to a few km deep) and transient corridors of strong horizontal water vapour transport that are typically associated with a low-level jet stream ahead of the cold front of an *extratropical cyclone (ETC)* (Ralph et al., 2018).

References

- 10.1175/BAMS-D-17-0157.1

semanticClimate annotation

Translations

- HI: वायुमंडलीय नदियाँ

WGI

ARs

attribution

Attribution is defined as the process of evaluating the relative contributions of multiple causal factors to a change or event with an assessment of confidence.

semanticClimate annotation

WGI,WGII

Australian and Maritime Continent monsoon

The Australian–Maritime Continent monsoon (AusMCM) occurs during December–January–February, with the large-scale shift of the Intertropical Convergence Zone into the Southern Hemisphere and covering northern Australia and the Maritime Continent up to 10°N.

The AusMCM is characterized by the seasonal reversal of prevailing easterly winds to westerly winds and the onset of periods of active convection and heavy rainfall. Over northern Australia, the monsoon season generally lasts from December to March and is associated with

west to north-westerly inflow of moist winds, producing convection and heavy precipitation. Over the Maritime Continent, the main rainy season south of the equator is centred on December to February with north-westerly monsoon flow at low levels. Further details on how AusMCM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

semanticClimate annotation

WGI
AusMCM

autonomous adaptation

Adaptation in response to experienced climate and its effects, without planning explicitly or consciously focused on addressing climate change.

Also referred to as spontaneous adaptation.

Parent-term

- Adaptation

semanticClimate annotation

Translations

- HI: स्वायत्त अनुकूलन

WGII

autotrophic respiration

Respiration by photosynthetic (see *photosynthesis*) organisms (e.g., plants and algae).

semanticClimate annotation

Translations

- HI: स्वपोषी श्वसन

avalanche

A mass of snow, ice, earth or rocks, or a mixture of these, falling down a mountainside.

semanticClimate annotation



From Wikipedia An avalanche is a rapid flow of snow down a slope, such as a hill or mountain. Avalanches can be set off spontaneously, by factors such as increased precipitation or snowpack weakening, or by external means such as humans, other animals, and earthquakes.

Translations

- HI: हिमस्खलन

WGI,WGII

Avoid, Shift, Improve

Reducing greenhouse gas emissions by avoiding the use of an emissions-producing service entirely, shifting to the lowest-emission mode of providing the service, and/or improving the technologies and systems for providing the service in ways that reduce emissions.

semanticClimate annotation

Translations

- HI: बचें, बदलाव करें, सुधार करें

WGIII
ASI

B

basal lubrication

Reduction of friction at the base of an *ice sheet* or *glacier* due to lubrication by meltwater.

This can allow the glacier or ice sheet to slide over its base. Meltwater may be produced by pressure-induced melting, friction or geothermal heat, or surface melt may drain to the base through holes in the ice.

semanticClimate annotation

WGI

baseline period

A time period against which differences are calculated (e.g., expressed as *anomalies* relative to a baseline).

Parent-term

- Reference period

semanticClimate annotation

Translations

- HI: आधारभूत अवधि

WGI,WGIII

baseline/reference

The baseline (or reference) is the state against which change is measured.

A baseline period is the period relative to which anomalies are computed. The baseline concentration of a trace gas is that measured at a location not influenced by local anthropogenic emissions.

semanticClimate annotation

WGII,WGIII

baseline scenario

See Reference Scenario

Parent-term

- Scenario

semanticClimate annotation

Translations

- HI: आधारभूत परिदृश्य

WGIII,WGI,WGII

behavioural change

In this report, behavioural change refers to alteration of human decisions and actions in ways that mitigate climate change and/or reduce negative consequences of climate change impacts.

semanticClimate annotation

Translations

- HI: व्यवहारात्मक परिवर्तन

WGII

benthic

Occurring at the bottom of a body of water; related to benthos (NOAA, 2018).

References

- NOAA. (2018b). What is a benthic habitat map? Retrieved November 27, 2018,
 from National Oceanic and Atmospheric Administration website:
<https://oceanservice.noaa.gov/facts/benthic.html>

semanticClimate annotation

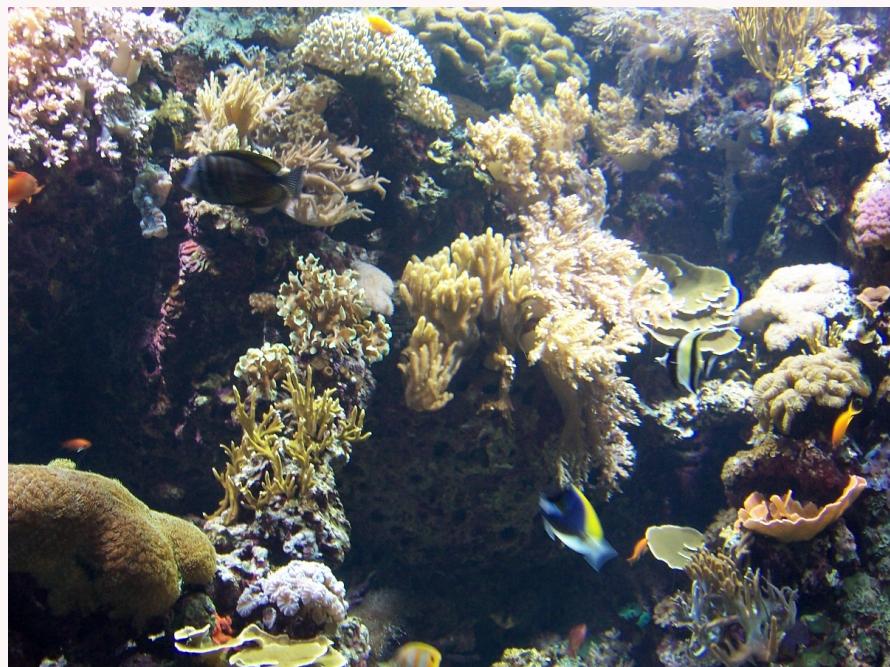
WGI,WGII

benthos

The community of organisms living on the bottom or in sediments of a body of water (such as an ocean, a river or a lake).

The ecological zone at the bottom of a body of water, including the sediment surface and some subsurface layers, is known as the benthic zone.

semanticClimate annotation



From Wikipedia Benthos (from Ancient Greek βένθος (bénthos) 'the depths [of the sea]'), also known as benthon, is the community of organisms that live on, in, or near the bottom of a sea, river, lake, or stream, also known as the benthic zone.

WGII

beta diversity

The change in species composition between different areas (spatial turnover) or times (temporal turnover) due to habitat and environmental heterogeneity

semanticClimate annotation

From Wikipedia In ecology, beta diversity (β -diversity or true beta diversity) is the ratio between regional and local species diversity. Translations

- HI: बीटा विविधता

WGII

biochar

Relatively stable, carbon-rich material produced by heating biomass in an oxygen-limited environment.

Biochar is distinguished from charcoal by its application: biochar is used as a soil amendment with the intention to improve soil functions and to reduce greenhouse gas emissions from biomass that would otherwise decompose rapidly (IBI, 2018).

semanticClimate annotation



From Wikipedia Biochar is the lightweight black residue, made of carbon and ashes, remaining after the pyrolysis of biomass, and is

a form of charcoal. Biochar is defined by the International Biochar Initiative as "the solid material obtained from the thermochemical conversion of biomass in an oxygen-limited environment".

Translations

- HI: जैव चारकोल

WGIII

biochemical oxygen demand

The amount of dissolved oxygen consumed by micro-organisms (bacteria) in the bio-chemical oxidation of organic and inorganic matter in wastewater.

semanticClimate annotation

From Wikipedia Biochemical oxygen demand (also known as BOD or biological oxygen demand) is an analytical parameter representing the amount of dissolved oxygen (DO) consumed by aerobic bacteria growing on the organic material present in a water sample at a specific temperature over a specific time period.

BOD

biodiversity

Biodiversity or biological diversity means the variability among living organisms from all sources including, among other things, terrestrial, marine and other aquatic *ecosystems*, and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems (UN, 1992).

semanticClimate annotation



From Wikipedia Biodiversity or biological diversity is the variety and variability of life on Earth. Biodiversity is a measure of variation at the genetic (genetic variability), species (species diversity), and ecosystem (ecosystem diversity) level.

Translations

- HI: जैव विविधता

WGI,WGIII,WGII

biodiversity hotspots

Biodiversity hotspots are geographic areas exceptionally rich in species, ecologically distinct, and often contain geographically-rare-endemic species.

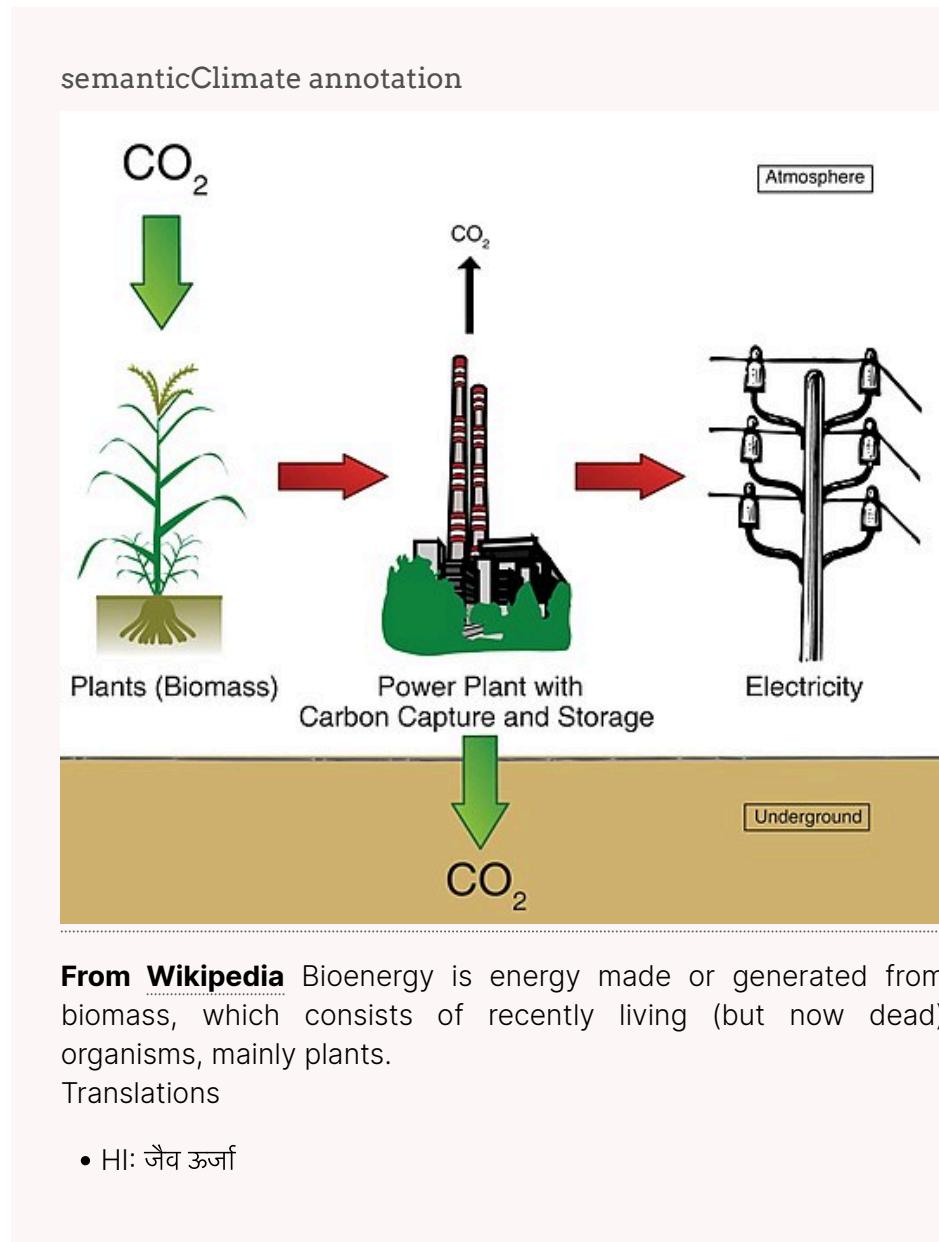
They are thus priorities for nature conservation action.

semanticClimate annotation

WGII

bioenergy

Energy derived from any form of biomass or its metabolic by-products.



WGIII,WGII

bioenergy with carbon dioxide capture and storage

Carbon dioxide capture and storage (CCS) technology applied to a *bioenergy* facility.

Note that depending on the total emissions of the BECCS supply chain, *carbon dioxide (CO₂)* can be removed from the *atmosphere*.

semanticClimate annotation

WGIII,WGI
BECCS

bioethanol

Ethanol produced from biomass (e.g., sugar cane or corn).

semanticClimate annotation

Common ethanol fuel mixtures

Code	E5	E10	E15	E25	E85	E100
Composition	max 5% anhydrous ethanol min 95% gasoline	max 10% anhydrous ethanol min 90% gasoline	max 15% anhydrous ethanol min 85% gasoline	max 25% anhydrous ethanol min 75% gasoline	max 85% anhydrous ethanol min 15% gasoline	=5.3% water 100% Brazilian hydrous ethanol (contains on average 5.3 vol.% water)
Countries	Western Europe today	USA today (Western Europe in near future)	USA EPA approval cars > 2000	Brazil	USA / Europe	Brazil

Gasoline blends for use in regular cars

Flex Fuel Vehicles

From Wikipedia Ethanol fuel is fuel containing ethyl alcohol, the same type of alcohol as found in alcoholic beverages. It is most often used as a motor fuel, mainly as a biofuel additive for gasoline.

biofuel

A fuel, generally in liquid form, produced from biomass.

Biofuels include bioethanol from sugarcane, sugar beet or maize, and biodiesel from canola or soybeans.

semanticClimate annotation



From Wikipedia Biofuel is a fuel that is produced over a short time span from biomass, rather than by the very slow natural processes involved in the formation of fossil fuels, such as oil. Biofuel can be produced from plants or from agricultural, domestic or industrial biowaste. Biofuels are mostly used for transportation, but can also be used for heating and electricity.

Translations

- HI: जैव ईंधन

WGIII,WGII

biogenic carbon emissions

Carbon released as carbon dioxide or methane from combustion or decomposition of biomass or biobased products.

semanticClimate annotation

Translations

- HI: बायोजेनिक कार्बन उत्सर्जन

WGIII

biogenic volatile organic compounds

Organic gas-phase compounds emitted from terrestrial and aquatic ecosystems that are critical in ecology and plant physiology, from abiotic and biotic stress functions to integrated components of metabolism.

BVOCs are important in atmospheric chemistry as precursors for ozone and secondary organic aerosol formation. Other terms used to represent BVOCs are hydrocarbons (HCs), reactive organic gases (ROGs) and non-methane volatile organic compounds (NMVOCs).

Parent-term

- Volatile organic compounds (VOCs)

semanticClimate annotation

Translations

- HI: बायोजेनिक वाष्पशील कार्बनिक यौगिक

WGI

BVOCs

biogeophysical potential

The mitigation potential constrained by biological, geophysical and geochemical limits and thermodynamics, without taking into account technical, social, economic and/or environmental considerations.

Parent-term

- Mitigation potential

semanticClimate annotation

Translations

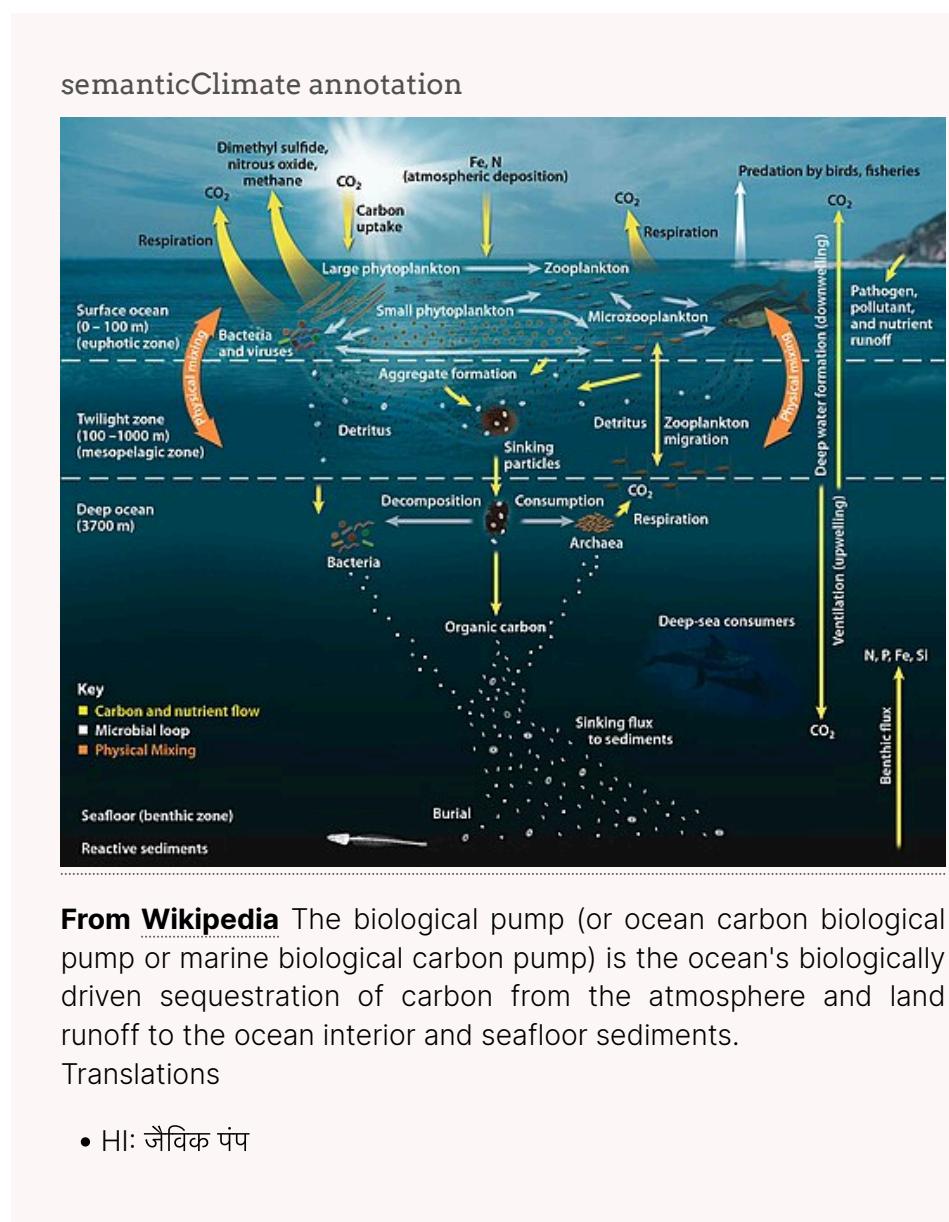
- HI: जैवमौतिकीय क्षमता

WGI, WGIII

biological pump

A series of ocean processes through which inorganic carbon (as carbon dioxide, CO₂) is fixed as organic matter by photosynthesis in sunlit

surface water and then transported to the ocean interior, and possibly the sediment, resulting in the storage of carbon.



WGI
carbon

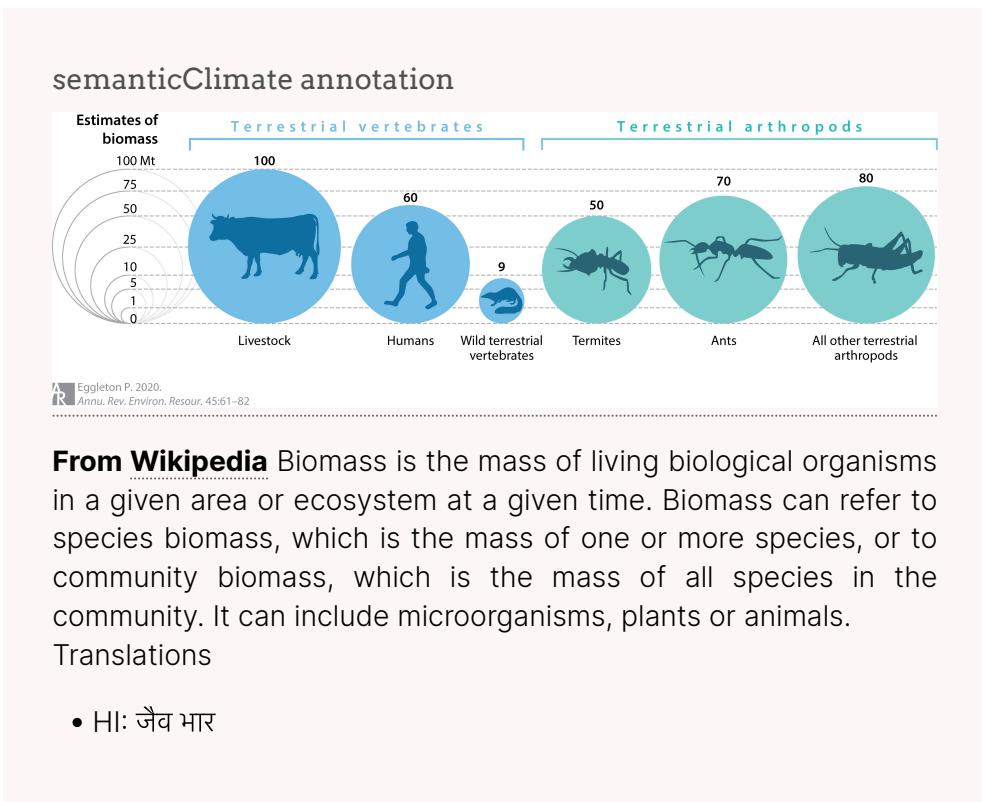
biomass

Organic material excluding the material that is fossilised or embedded in geological formations.

Biomass may refer to the mass of organic matter in a specific area (ISO, 2014).

Sub-terms

- Traditional biomass

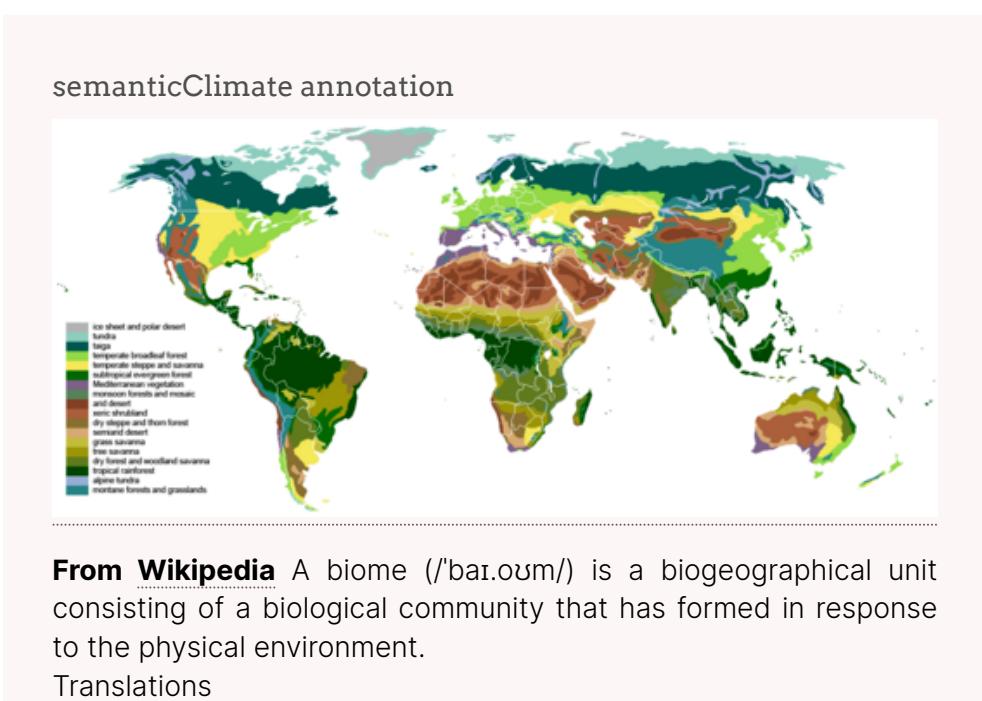


WGI, WGIII, WGII

biomes

Global-scale zones, generally defined by the type of plant life that they support in response to average rainfall and temperature patterns.

For example, tundra, coral reefs or savannas (IPBES, 2019).



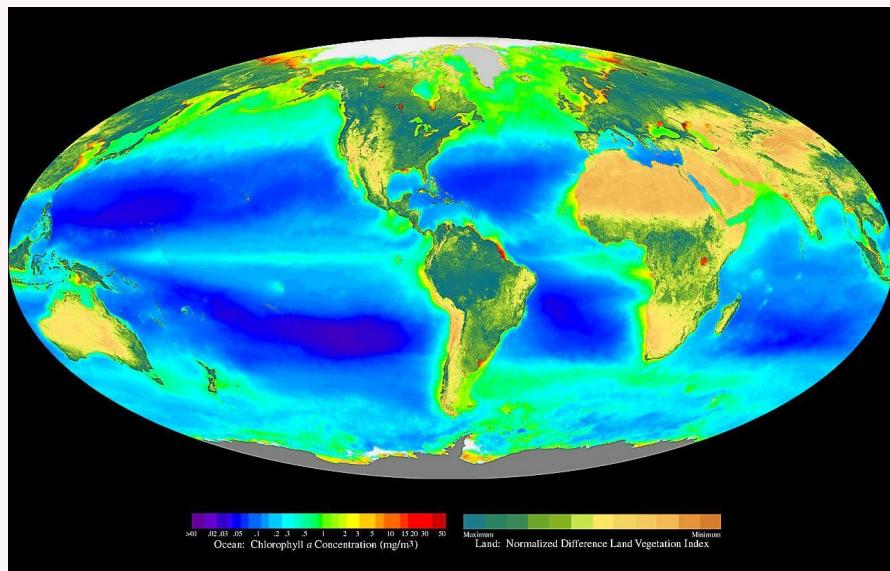
- HI: जैवक्षेत्र

WGII

biosphere

The part of the Earth system comprising all *ecosystems* and living organisms, in the *atmosphere*, on land (terrestrial biosphere) or in the oceans (marine biosphere), including derived dead organic matter, such as litter, soil organic matter and oceanic detritus.

semanticClimate annotation



from Wikipedia The biosphere (from Greek βίος "life" and σφαῖρα sphaira "sphere"), also known as the ecosphere (from Greek οἶκος oîkos "environment" and σφαῖρα), is the worldwide sum of all ecosystems. It can also be termed the zone of life on Earth.

Translations

- HI: जैवमण्डल

WGI,WGII
terrestrial and marine

bipolar seesaw

A phenomenon in which temperature changes in the Northern and Southern hemispheres are related but out of phase, generally inferred to

represent a change in the magnitude or sign of net heat transport across the equator.

Originally called hemispheric asymmetry and linked to changes in thermohaline overturning circulation on multi-millennial scales (Mix et al, 1986), later named bipolar seesaw and applied to millennial scales (Broecker, 1998) with a similar thermohaline mechanism (Stocker and Johnsen, 2003).

References

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- Mix, A.C., W.F. Ruddiman and A. McIntyre (1986) Late Quaternary paleoceanography of the tropical Atlantic, I: Spatial variability of annual mean sea-surface temperatures, 0-20,000 years B.P. *Paleoceanography*, 1/1, 43-66.
- Stocker, T.F., and S. J. Johnsen (2003) A minimum thermodynamic model for the bipolar seesaw, *Paleoceanography and Paleoclimatology*, <https://doi.org/10.1029/2003PA000920>.

semanticClimate annotation

WGI

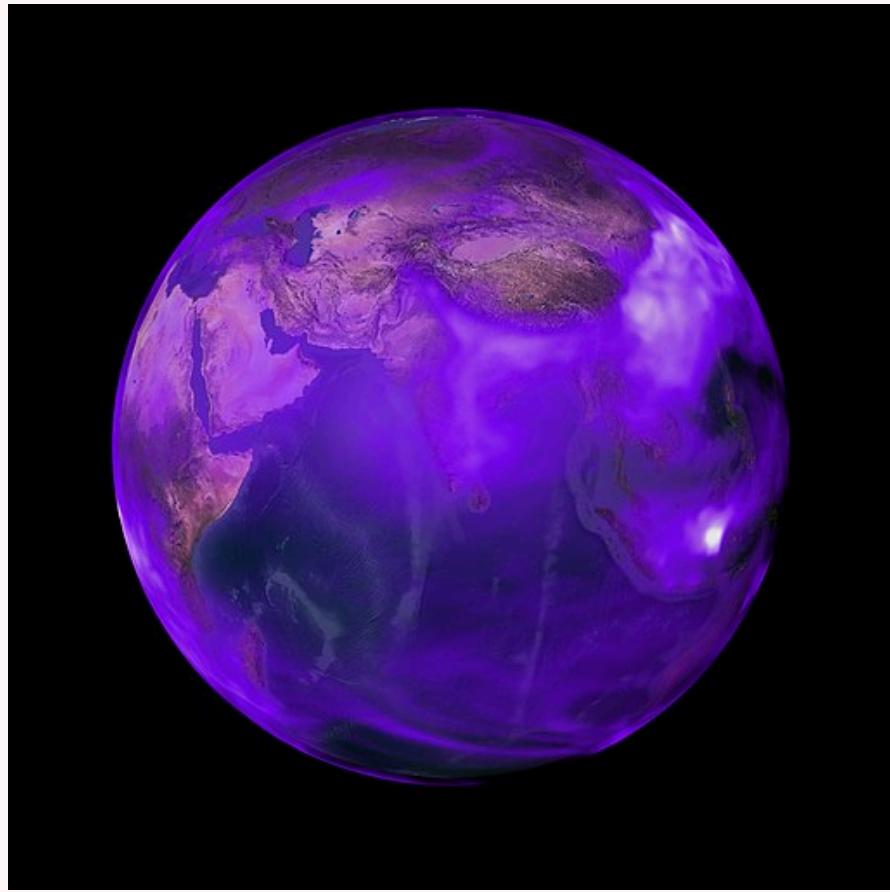
also inter-hemispheric seesaw, inter-hemispheric asymmetry, hemispheric asymmetry

black carbon

A relatively pure form of carbon, also known as soot, arising from the incomplete combustion of fossil fuels, biofuel, and biomass.

It only stays in the atmosphere for days or weeks. BC is a climate forcing agent with strong warming effect, both in the atmosphere and when deposited on snow or ice.

semanticClimate annotation



From Wikipedia Chemically, black carbon (BC) is a component of fine particulate matter ($\text{PM} \leq 2.5 \mu\text{m}$ in aerodynamic diameter). Black carbon consists of pure carbon in several linked forms. It is formed through the incomplete combustion of fossil fuels, biofuel, and biomass, and is one of the main types of particle.

WGI,WGIII
BC

blocking

Associated with persistent, slow-moving high-pressure systems that obstruct the prevailing westerly winds in the middle and high latitudes and the normal eastward progress of extratropical transient storm systems.

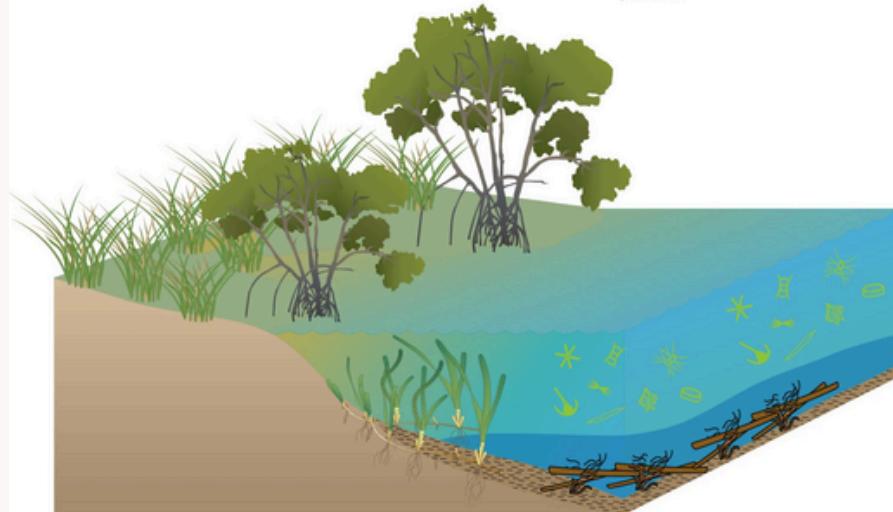
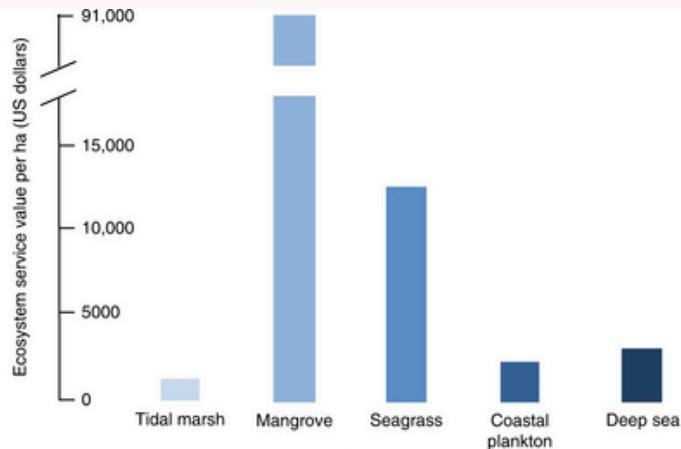
It is an important component of the intra-seasonal *climate variability* in the extratropics and can cause long-lived weather conditions such as cold spells in winter and summer *heatwaves*.

WGI

blue carbon

Biologically driven carbon fluxes and storage in marine systems that are amenable to management.

Coastal blue carbon focuses on rooted vegetation in the coastal zone, such as tidal marshes, mangroves and seagrasses. These *ecosystems* have high carbon burial rates on a per unit area basis and accumulate carbon in their soils and sediments. They provide many non-climatic benefits and can contribute to ecosystem-based adaptation. If degraded or lost, coastal blue carbon ecosystems are likely to release most of their carbon back to the *atmosphere*. There is current debate regarding the application of the blue carbon concept to other coastal and non-coastal processes and ecosystems, including the open *ocean*.



From Wikipedia Blue carbon is a term used in the climate change mitigation context that refers to "biologically driven carbon fluxes and storage in marine systems that are amenable to management."

WGIII,WGII,WGI

blue infrastructure

Blue infrastructure includes bodies of water, watercourses, ponds, lakes and storm drainage, that provide ecological and hydrological functions including evaporation, transpiration, drainage, infiltration and temporary storage of runoff and discharge.

Parent-term

- Infrastructure

semanticClimate annotation

WGIII,WGII

Brewer-Dobson circulation

The meridional overturning circulation of the *stratosphere* transporting air upward in the tropics, poleward to the winter hemisphere, and downward at polar and subpolar latitudes.

The Brewer–Dobson circulation is driven by the interaction between upward propagating planetary waves and the mean flow.

semanticClimate annotation

WGI

burden

The total mass of a substance of concern in the *atmosphere*.

semanticClimate annotation

WGI,WGII

business as usual

The term business as usual scenario has been used to describe a scenario that assumes no additional policies beyond those currently in place and that patterns of socio-economic development are consistent with recent trends.

The term is now used less frequently than in the past.

semanticClimate annotation

WGIII,WGII,WGI
BAU

C

CMIP3, CMIP5 and CMIP6

Coupled Model Intercomparison Project Phase 3, Phase 5 and Phase 6.

semanticClimate annotation

CO₂ equivalent emission

The amount of *carbon dioxide (CO₂)* emission that would have an equivalent effect on a specified key measure of *climate change*, over a specified time horizon, as an emitted amount of another *greenhouse gas (GHG)* or a mixture of other GHGs.

For a mix of GHGs it is obtained by summing the CO₂-equivalent emissions of each gas. There are various ways and time horizons to compute such equivalent emissions (see *greenhouse gas emission metric*). CO₂-equivalent emissions are commonly used to compare emissions of different GHGs, but should not be taken to imply that these emissions have an equivalent effect across all key measures of climate change.

[Note: Under the Paris Rulebook (Decision 18/CMA.1, annex, paragraph 37), parties have agreed to use GWP-100 values from the IPCC AR5 or GWP-100 values from a subsequent IPCC Assessment Report to report aggregate emissions and removals of GHGs. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.]

semanticClimate annotation

WGI,WGIII
CO₂-eq

calcification

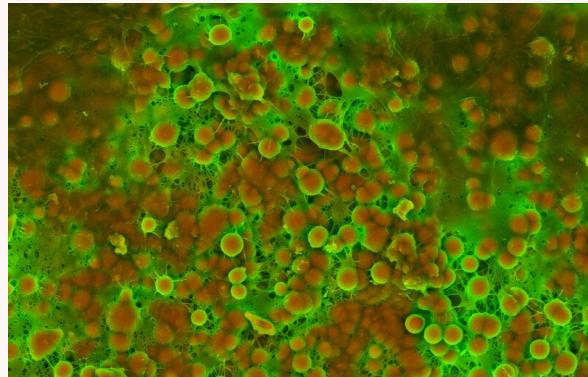
The process of biologically precipitating calcium carbonate minerals to create organism shells, skeletons, otoliths, or other body structures.

The chemical equation describing calcification is $\text{Ca}^{2+}(\text{aq}) + 2\text{HCO}_3^-(\text{aq}) \rightarrow \text{CaCO}_3(\text{s}) + \text{CO}_2 + \text{H}_2\text{O}$. Aragonite and calcite are two common crystalline forms of biologically precipitated calcium carbonate minerals that have different solubilities.

References

- Ocean Acidification: The Other CO₂ Problem
 Scott C. Doney, Victoria J. Fabry, Richard A. Feely, Joan A. Kleypas
 Annual Review of Marine Science 2009 1:1, 169-192

semanticClimate annotation



From Wikipedia Calcification is the accumulation of calcium salts in a body tissue. It normally occurs in the formation of bone, but calcium can be deposited abnormally in soft tissue, causing it to harden.

Translations

- HI: कैल्शियम लवणों का संचय

WGII,WGI

calving

The breaking off of discrete pieces of ice from a *glacier*, *ice sheet* or an *ice shelf* into lake or seawater, producing *icebergs*. This is a form of mass loss from an ice body.

semanticClimate annotation



From Wikipedia Ice calving, also known as glacier calving or iceberg calving, is the breaking of ice chunks from the edge of a glacier. It is a form of ice ablation or ice disruption. It is the sudden release and breaking away of a mass of ice from a glacier, iceberg, ice front, ice shelf, or crevasse.

Translations

- HI: बर्फ विघटन

WGI
of glaciers or ice sheets

canopy temperature

The temperature within the canopy of a vegetation structure.

semanticClimate annotation

WGI

capacity building

The practice of enhancing the strengths and attributes of, and resources available to, an individual, community, society or organisation to respond to change.

semanticClimate annotation

WGII

carbon budget

Refers to two concepts in the literature:

(i) an assessment of carbon cycle *sources* and *sinks* on a global level, through the synthesis of evidence for *fossil fuel* and cement emissions, emissions and removals associated with *land use* and *land-use change*, ocean and natural land sources and sinks of *carbon dioxide (CO₂)*, and the resulting change in atmospheric CO₂ concentration.

This is referred to as the global carbon budget; (ii) the maximum amount of cumulative net global *anthropogenic* CO₂ emissions that would result in limiting *global warming* to a given level with a given probability, taking into account the effect of other anthropogenic climate *forcers*. This is referred to as the Total Carbon Budget when expressed starting from the *pre-industrial* period, and as the remaining carbon budget when expressed from a recent specified date.

Note 1: Net anthropogenic CO₂ emissions are anthropogenic CO₂ emissions minus anthropogenic CO₂ removals. See also *Carbon dioxide removal (CDR)*.

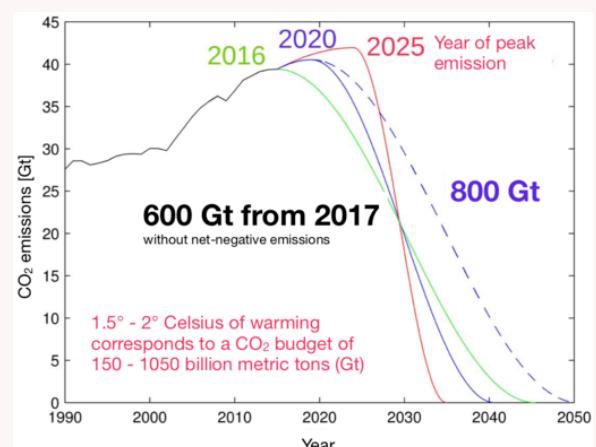
Note 2: The maximum amount of cumulative net global anthropogenic CO₂ emissions is reached at the time that annual net anthropogenic CO₂ emissions reach zero.

Note 3: The degree to which anthropogenic climate forcers other than CO₂ affect the total carbon budget and remaining carbon budget

depends on human choices about the extent to which these forcers are mitigated and their resulting *climate* effects.

Note 4: The notions of a total carbon budget and remaining carbon budget are also being applied in parts of the scientific literature and by some entities at regional, national, or sub-national level. The distribution of global budgets across individual different entities and emitters depends strongly on considerations of equity and other value judgements.

semanticClimate annotation



From Wikipedia A carbon budget is a concept used in climate policy to help set emissions reduction targets in a fair and effective way.

Translations

- HI: কার্বন বজট

WGI,WGIII

carbon-climate feedback

A climate feedback involves changes in the properties of the land and ocean carbon cycle in response to climate change.

In the ocean, changes in oceanic temperature and circulation could affect the atmosphere-ocean carbon dioxide (CO₂) flux; on the continents, climate change could affect plant photosynthesis and soil microbial respiration

and hence the flux of CO₂ between the atmosphere and the land biosphere.

semanticClimate annotation

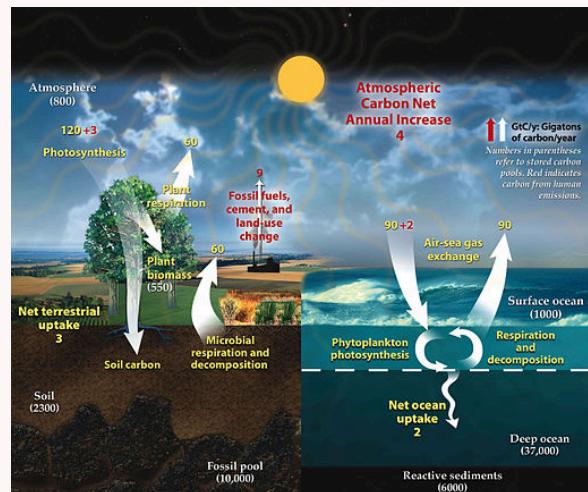
WGI

carbon cycle

The flow of carbon (in various forms, e.g., as carbon dioxide (CO₂), carbon in biomass, and carbon dissolved in the ocean as carbonate and bicarbonate) through the atmosphere, hydrosphere, terrestrial and marine biosphere and lithosphere.

In this report, the reference unit for the global carbon cycle is GtCO₂ or GtC (one Gigatonne = 1 Gt = 10¹⁵ grams; 1 GtC corresponds to 3.664 GtCO₂).

semanticClimate annotation



From Wikipedia The carbon cycle is that part of the biogeochemical cycle by which carbon is exchanged among the biosphere, pedosphere, geosphere, hydrosphere, and atmosphere of Earth.

Translations

- HI: કાર્બન ચક્ર

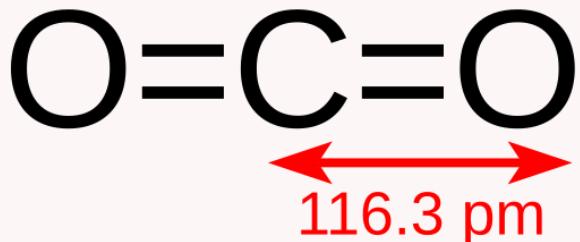
WGI,WGIII

carbon dioxide

A naturally occurring gas, CO₂ is also a by-product of burning fossil fuels (such as oil, gas and coal), of burning biomass, of land-use changes (LUCs) and of industrial processes (e.g., cement production).

It is the principal anthropogenic greenhouse gas (GHG) that affects the Earth's radiative balance. It is the reference gas against which other GHGs are measured and therefore has a global warming potential (GWP) of 1.

semanticClimate annotation



From Wikipedia Carbon dioxide is a chemical compound with the chemical formula CO₂. It is made up of molecules that each have one carbon atom covalently double bonded to two oxygen atoms. It is found in the gas state at room temperature, and as the source of available carbon in the carbon cycle, atmospheric CO₂ is the primary carbon source for life on Earth.
Translations

- HI: कार्बन डाइऑक्साइड

WGI,WGIII,WGII,SYR
CO₂

carbon dioxide fertilisation

The increase of plant photosynthesis and water-use efficiency in response to increased atmospheric *carbon dioxide* (CO₂) concentration.

Whether this increased photosynthesis translates into increased plant growth and carbon storage on land depends on the interacting effects of temperature, moisture and nutrient availability.

semanticClimate annotation

WGI,WGII
CO₂

carbon dioxide capture and storage

A process in which a relatively pure stream of carbon dioxide (CO₂) from industrial and energy-related sources is separated (captured), conditioned, compressed and transported to a storage location for long-term isolation from the atmosphere.

Sometimes referred to as carbon capture and storage.

semanticClimate annotation

WGIII,WGI
CCS

carbon dioxide capture and utilisation

A process in which carbon dioxide (CO₂) is captured and the carbon then used in a product.

The climate effect of CCU depends on the product lifetime, the product it displaces, and the CO₂ source (fossil, biomass or atmosphere). CCU is sometimes referred to as Carbon Dioxide Capture and Use, or Carbon Capture and Utilisation.

semanticClimate annotation

WGIII

carbon dioxide removal

Anthropogenic activities removing *carbon dioxide (CO₂)* from the *atmosphere* and durably storing it in geological, terrestrial, or *ocean* reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical CO₂ *sinks* and direct air carbon dioxide capture and storage (DACCs) but excludes natural CO₂ *uptake* not directly caused by human activities.

semanticClimate annotation

From Wikipedia Carbon dioxide removal (CDR), also known as carbon removal, greenhouse gas removal (GGR) or negative emissions, is a process in which carbon dioxide gas (CO₂) is removed from the atmosphere by deliberate human activities and durably stored in geological, terrestrial, or ocean reservoirs, or in products.

WGI,WGIII,WGII
CDR

carbon feedback

A climate feedback involves changes in the properties of the land and ocean carbon cycle in response to climate change.

In the ocean, changes in oceanic temperature and circulation could affect the atmosphere–ocean carbon dioxide (CO₂) flux; on the continents, climate change could affect plant photosynthesis and soil microbial respiration and hence the flux of CO₂ between the atmosphere and the land biosphere.

semanticClimate annotation

Translations

- HI: कार्बन प्रतिक्रिया

carbon footprint

Measure of the exclusive total amount of emissions of carbon dioxide (CO₂) that is directly and indirectly caused by an activity or is accumulated over the lifecycle stages of a product (Wiedmann and Minx, 2008).

Sub-terms

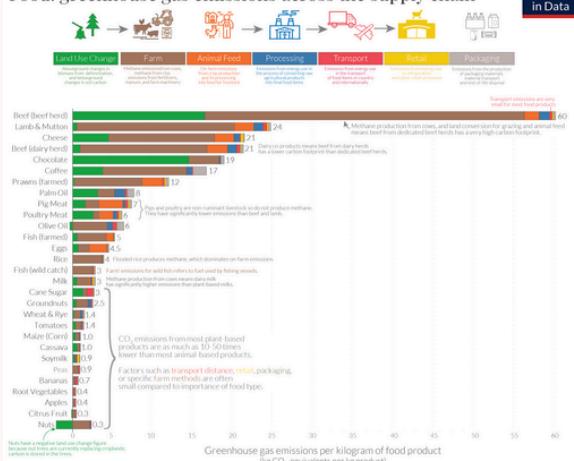
- Household carbon footprint

References

- Wiedmann, T. and Minx, J. C. (2008). A definition of carbon footprint, in C. Pertsova (ed.), Ecological Economics Research Trends, Nova Science Publishers, Hauppauge NY, chapter 1, pp. 1–11. URL: https://www.novapublishers.com/catalog/product_info.php?products_id=5999

semanticClimate annotation

Food: greenhouse gas emissions across the supply chain



From Wikipedia The carbon footprint (or greenhouse gas footprint) serves as an indicator to compare the total amount of greenhouse gases emitted from an activity, product, company or country.

Translations

- HI: कार्बन पदचिह्न

WGIII,WGII

carbon intensity

The amount of emissions of carbon dioxide (CO₂) released per unit of another variable such as gross domestic product (GDP), output energy use or transport.

semanticClimate annotation

WGIII

carbon neutrality

Condition in which anthropogenic carbon dioxide (CO₂) emissions associated with a subject are balanced by anthropogenic CO₂ removals.

The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service and an event. Carbon neutrality is often assessed over the lifecycle including indirect ('scope 3') emissions, but can also be limited to the emissions and removals, over a specified period, for which the subject has direct control, as determined by the relevant scheme.

[Note 1: Carbon neutrality and *net zero CO₂ emissions* are overlapping concepts. The concepts can be applied at global or sub-global scales (e.g., regional, national and sub-national). At a global scale, the terms carbon neutrality and net zero CO₂ emissions are equivalent. At sub-global scales, net zero CO₂ emissions is generally applied to emissions and removals under direct control or territorial responsibility of the reporting entity, while carbon neutrality generally includes emissions and removals within and beyond the direct control or territorial responsibility of the reporting entity. Accounting rules specified by greenhouse gas (GHG) programmes or schemes can have a significant influence on the quantification of relevant CO₂

emissions and removals.

Note 2: In some cases achieving carbon neutrality may rely on the supplementary use of offsets to balance emissions that remain after actions by the reporting entity are taken into account.]

semanticClimate annotation

From Wikipedia Global net zero emissions, or simply net zero, is a state in which human-caused emissions are balanced by human-caused carbon dioxide removals over a specified time period.

Translations

- HI: કાર્બન તટસ્થતા

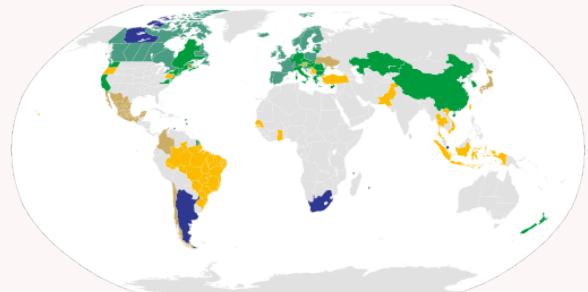
WGI,WGIII

carbon price

The price for avoided or released carbon dioxide (CO₂) or CO₂-equivalent emissions.

This may refer to the rate of a carbon tax, or the price of emission permits. In many models that are used to assess the economic costs of mitigation, carbon prices are used as a proxy to represent the level of effort in mitigation policies.

semanticClimate annotation



From Wikipedia Carbon pricing (or CO₂ pricing) is a method for nations to address climate change. The cost is applied to greenhouse gas emissions in order to encourage polluters to reduce the

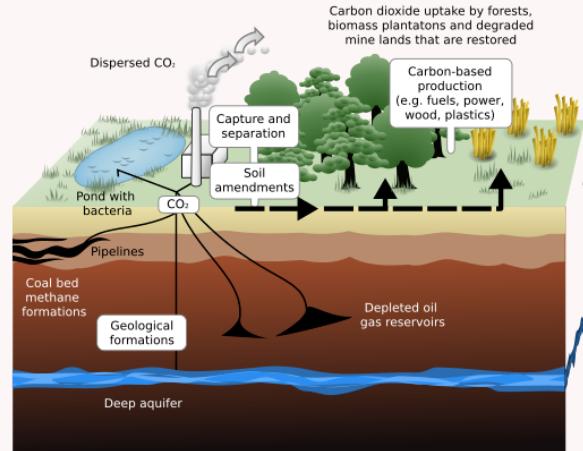
combustion of coal, oil and gas – the main driver of climate change.

WGIII

carbon sequestration

The process of storing carbon in a carbon pool.

semanticClimate annotation



From Wikipedia Carbon sequestration (or carbon storage) is the process of storing carbon in a carbon pool.

Translations

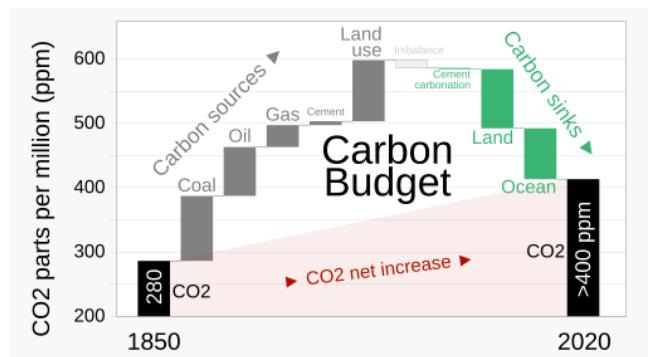
- HI: कार्बन पृथक्करण

WGI

carbon sink

Any process, activity or mechanism which removes CO₂ from the atmosphere.

semanticClimate



From Wikipedia A carbon sink is anything, natural or otherwise, that accumulates and stores some carbon-containing chemical compound for an indefinite period and thereby removes carbon dioxide (CO₂) from the atmosphere.

WGIII,WGI

carbon stock

The quantity of carbon in a carbon pool.

semanticClimate annotation

WGIII,WGII

carbonaceous aerosol

Aerosol consisting predominantly of organic substances and *black carbon*.

semanticClimate annotation

WGI

carbonate pump

Ocean carbon fixation through the biological formation of carbonates, primarily by plankton that generate bio-mineral particles that sink to the ocean interior, and possibly the sediment.

It is also called carbonate counter-pump, since the formation of calcium carbonate (CaCO₃) is accompanied by the release of *carbon dioxide*

(CO₂) to surrounding water and subsequently to the *atmosphere*.

semanticClimate annotation

WGI

cascading impacts

Cascading impacts from *extreme weather/climate events* occur when an extreme *hazard* generates a sequence of secondary events in natural and *human systems* that result in physical, natural, social or economic disruption, whereby the resulting impact is significantly larger than the initial impact.

Cascading impacts are complex and multi-dimensional, and are associated more with the magnitude of *vulnerability* than with that of the hazard (modified from Pescaroli and Alexander, 2015).

semanticClimate annotation

WGII

catchment

An area that collects and drains precipitation.

semanticClimate annotation

From Wikipedia

Translations

- HI: जलसम्भर

WGI,WGII

Cenozoic Era

The third and current geological Era, which began 66.0 Ma.

It comprises the Paleogene, Neogene and Quaternary Periods.

semanticClimate annotation



From Wikipedia The Cenozoic (/si:nə'zou.ɪk, -sən-/ SEE-nə-ZOH-ik, SEN-ə-lit. 'new life') is Earth's current geological era, representing the last 66 million years of Earth's history. It is characterised by the dominance of mammals, birds and flowering plants.

Translations

- HI: সেনোজোইক যুগ

WGI

Central Pacific El Niño

An El Niño event in which sea surface temperature anomalies are stronger in the central equatorial Pacific than in the east.

Also known as a Modoki El Niño event.

Parent-term

- El Niño–Southern Oscillation (ENSO)

semanticClimate annotation

WGI

chaotic

A *dynamical system* such as the *climate system*, governed by non-linear deterministic equations, may exhibit erratic or chaotic behaviour in the sense that very small changes in the initial state of the system lead to large and apparently unpredictable changes in its temporal evolution.

Such chaotic behaviour limits the *predictability* of the state of a non-linear dynamical system at specific future times, although changes in its statistics may still be predictable given changes in the system parameters or boundary conditions.

semanticClimate annotation

WGI

charcoal

Material resulting from charring of *biomass*, usually retaining some of the microscopic texture typical of plant tissues; chemically it consists mainly of carbon with a disturbed graphitic structure, with lesser amounts of oxygen and hydrogen.

semanticClimate annotation



From Wikipedia Charcoal is a lightweight black carbon residue produced by strongly heating wood (or other animal and plant materials) in minimal oxygen to remove all water and volatile constituents. In the

traditional version of this pyrolysis process, called charcoal burning, often by forming a charcoal kiln, the heat is supplied by burning part of the starting material itself, with a limited supply of oxygen.

Translations

- HI: लकड़ी का कोयला

WGI

chlorofluorocarbons

An organic compound that contains chlorine, carbon, hydrogen, and fluorine and is used for refrigeration, air conditioning, packaging, plastic foam, insulation, solvents, or aerosol propellants.

Because they are not destroyed in the lower atmosphere, CFCs drift into the upper atmosphere where, given suitable conditions, they lead to ozone (O_3) depletion. They are some of the greenhouse gases (GHGs) covered under the 1987 Montreal Protocol as a result of which manufacturing of these gases has been phased out, and they are being replaced by other compounds, including *hydrofluorocarbons* (*HFCs*).

semanticClimate annotation



From Wikipedia Chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are fully or partly halogenated hydrocarbons that contain carbon (C), hydrogen (H), chlorine (Cl), and fluorine (F), produced as volatile derivatives of methane, ethane, and propane.

Translations

- HI: क्लोरोफ्लुओरोकार्बन

WGI
CFCs

choice architecture

The presentation of choices to consumers, and the impact that presentation has on consumer decision-making.

semanticClimate annotation

WGIII

chronology

Arrangement of events according to dates or times of occurrence.

semanticClimate annotation

From Wikipedia Chronology (from Latin *chronologia*, from Ancient Greek χρόνος, *chrónos*, "time"; and -λογία, *-logia*) is the science of arranging events in their order of occurrence in time. Consider, for example, the use of a timeline or sequence of events. It is also "the determination of the actual temporal sequence of past events".

Translations

- HI: कालक्रम विज्ञान

WGI

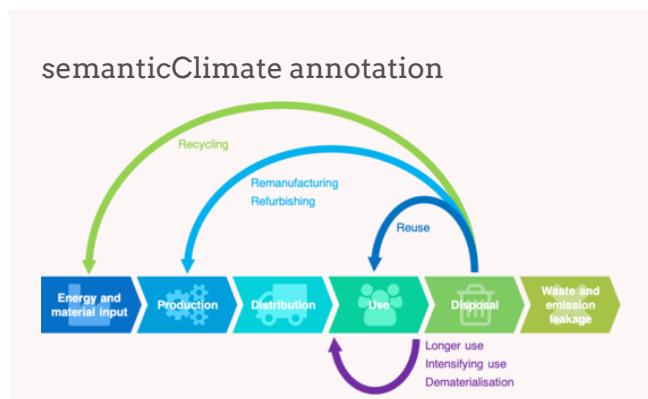
circular economy

A system with minimal input and operational losses of materials and energy through extensive reduce, reuse, recycling, and recovery activities.

Ten strategies for circularity include: Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, Recover.

References

- Kirchherr, J., Reike, D. and Hekkert, M. (2017): Conceptualizing the circular economy: An analysis of 114 definitions. Resources, Conservation and Recycling 127, 221-232,
<https://doi.org/10.1016/j.resconrec.2017.09.005>
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- Haupt, M., C. Vadenbo, S. Hellweg, 2017. "Do we have the right performance indicators for the circular economy? Insight into the Swiss waste management system. J of Industrial Ecology, vo. 21, iss. 3.



From Wikipedia A circular economy (also referred to as circularity or CE) is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible.

Translations

- HI: चक्रीय अर्थव्यवस्था

WGIII

cirrus cloud thinning

One of several radiation modification approaches to counter the warming caused by greenhouse gases (GHGs).

In this approach, it is proposed to reduce the amount of cirrus clouds by injecting ice nucleating substances in the upper troposphere. The reduction in cirrus clouds is expected to increase the amount of longwave cooling to space resulting in a planetary cooling. Although cirrus cloud thinning primarily affects the longwave radiation budget of our planet, it is often identified as one of the solar radiation modification (SRM) approaches in the literature.

Parent-term

- Solar radiation modification (SRM)

semanticClimate annotation



From Wikipedia Cirrus cloud thinning (CCT) is a proposed form of climate engineering. Cirrus clouds are high cold ice that, like other clouds, both reflect sunlight and absorb warming infrared radiation.
Translations

- HI: सिरस क्लाउड थिनिंग

WGI
CCT

cities

Cities are open systems, continually exchanging resources, products and services, waste, people, ideas and finances with the hinterlands and broader world.

Cities are complex, self-organising, adaptive and constantly evolving. Cities also encompass multiple actors with varying responsibilities, capabilities and priorities, as well as processes that transcend the institutional sector-based approach to city administration. Cities are embedded in broader ecological, economic, technical, institutional, legal and governance structures that enable or often constrain their systemic function, which cannot be separated from wider power relations. Urban processes of a physical, social and economic nature are causally interlinked, with interactions and feedbacks that result in both intended and unintended impacts on emissions.

semanticClimate annotation



From Wikipedia A city is a human settlement of a notable size. It can be defined as a permanent and densely settled place with administratively defined boundaries whose members work primarily on non-agricultural tasks. Cities generally have extensive systems for housing, transportation, sanitation, utilities, land use, production of goods, and communication.

Translations

- HI: शहर

WGII,WGIII

citizen science

A voluntary participation of the public in the collection and/or processing of data as part of a scientific study (Silvertown, 2009).

semanticClimate annotation



From Wikipedia Citizen science (similar to community science, crowd science, crowdsourced science, civic science, participatory monitoring, or volunteer monitoring) is scientific research conducted with participation from the general public (who are sometimes referred to as amateur/nonprofessional scientists).

Translations

- HI: नागरिक विज्ञान

WGIII

city region

The areal extent of an individual city's material associations and economic or political influence.

The city region concept accepts that rural livelihoods and land uses can be incorporated within the functional activities of a city. This will include dormitory settlements, sources for critical inputs of water, some food, and waste disposal.

semanticClimate annotation

WGII,WGIII

clathrate

A partly frozen slushy mix of *methane* gas and ice, usually found in sediments.

semanticClimate annotation

WGI
methane

Clausius–Clapeyron equation/relationship

The thermodynamic relationship between temperature and the vapour pressure of a substance in which two phases of the substance are in equilibrium (e.g., liquid water and water vapour).

For gases such as water vapour, this relation gives the increase in equilibrium (or saturation) vapour pressure per unit change in air temperature.

semanticClimate annotation

From Wikipedia The Clausius–Clapeyron relation, in chemical thermodynamics specifies the temperature dependence of pressure, most importantly vapor pressure, at a discontinuous phase transition between two phases of matter of a single constituent.

WGI

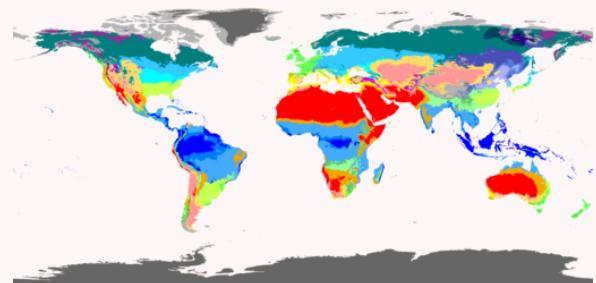
climate

In a narrow sense, climate is usually defined as the average weather, or more rigorously as the statistical description in terms of the mean and variability of relevant quantities over a period of

time ranging from months to thousands or millions of years.

The classical period for averaging these variables is 30 years, as defined by the World Meteorological Organization (WMO). The relevant quantities are most often surface variables such as temperature, precipitation and wind. Climate in a wider sense is the state, including a statistical description, of the *climate system*.

semanticClimate annotation



From Wikipedia Climate is the long-term weather pattern in a region, typically averaged over 30 years. More rigorously, it is the mean and variability of meteorological variables over a time spanning from months to millions of years.
Translations

- HI: जलवायु

WGI,WGIII,WGII

climate–carbon cycle feedback

A *climate feedback* involves changes in the properties of the land and ocean *carbon cycle* in response to *climate change*.

In the ocean, changes in oceanic temperature and circulation could affect the *atmosphere–ocean* carbon dioxide (CO₂) flux; on the continents, *climate change* could affect plant *photosynthesis* and soil microbial *respiration* and hence the flux of CO₂ between the *atmosphere* and the land *biosphere*.

semanticClimate annotation

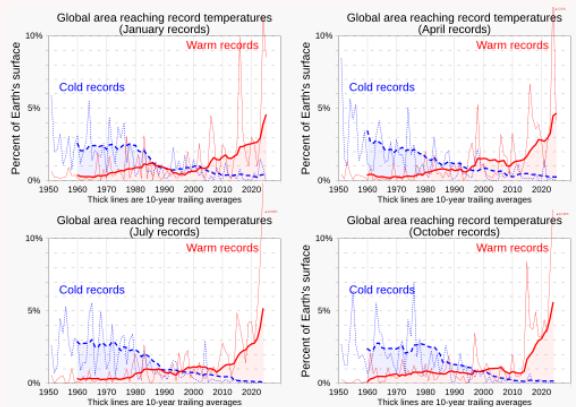
WGI

climate change

A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.

Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use. Note that the United Nations Framework Convention on Climate Change (UNFCCC), in its Article 1, defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. The UNFCCC thus makes a distinction between climate change attributable to human activities altering the atmospheric composition and climate variability attributable to natural causes.

semanticClimate annotation



From Wikipedia Climate variability includes all the variations in the climate that last longer than individual weather events,

whereas the term climate change only refers to those variations that persist for a longer period of time, typically decades or more.

Translations

- HI: जलवायु परिवर्तन

climate change commitment

Unavoidable future *climate change* resulting from inertia in the geophysical and socio-economic systems.

Different types of climate change commitment are discussed in the literature (see subterms). Climate change commitment is usually quantified in terms of the further change in temperature, but it includes other future changes, for example in the *hydrological cycle*, in *extreme weather events*, in extreme climate events, and in sea level.

Sub-terms

- Constant composition commitment
- Constant emissions commitment
- Zero emissions commitment

semanticClimate annotation

WGI,WGIII

climate extreme

The occurrence of a value of a weather or *climate* variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable. By definition, the characteristics of what is called *extreme weather* may vary from place to place in an absolute sense. When a pattern of extreme weather persists for some time, such as a season, it may be classified as an extreme climate event, especially if it yields an average

or total that is itself extreme (e.g., high temperature, *drought*, or heavy rainfall over a season). For simplicity, both extreme weather events and extreme climate events are referred to collectively as climate extremes.

Sub-terms

- Extreme climate event

semanticClimate annotation

WGIII,WGII,WGI
extreme weather or climate event

climate feedback

An interaction in which a perturbation in one *climate* quantity causes a change in a second and the change in the second quantity ultimately leads to an additional change in the first.

A negative feedback is one in which the initial perturbation is weakened by the changes it causes; a positive feedback is one in which the initial perturbation is enhanced. The initial perturbation can either be externally forced or arise as part of internal variability.

semanticClimate annotation

WGI,WGII

climate feedback parameter

A way to quantify the radiative response of the *climate system* to a global surface temperature change induced by a *radiative forcing*.

It is quantified as the change in net energy flux at the top of atmosphere for a given change in annual global surface temperature. It has units of $\text{W m}^{-2} \text{ }^{\circ}\text{C}^{-1}$.

semanticClimate annotation

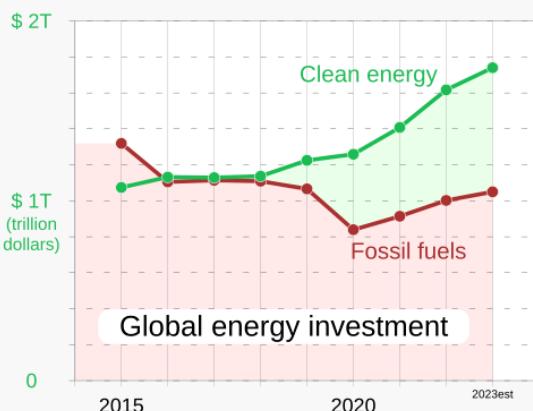
WGI

climate finance

There is no agreed definition of climate finance.

The term 'climate finance' is applied to the financial resources devoted to addressing climate change by all public and private actors from global to local scales, including international financial flows to developing countries to assist them in addressing climate change. Climate finance aims to reduce net greenhouse gas emissions and/or to enhance adaptation and increase resilience to the impacts of current and projected climate change. Finance can come from private and public sources, channelled by various intermediaries, and is delivered by a range of instruments, including grants, concessional and non-concessional debt, and internal budget reallocations.

semanticClimate annotation



From Wikipedia Climate finance are funding processes for investments related to climate change mitigation and adaptation. The term has been used in a narrower sense to refer to transfers of public resources from developed to developing countries, in light of their UN

Climate Convention obligations to provide "new and additional financial resources".
Translations

- HI: जलवायु वित्त

WGIII,WGII

climate forecast

A climate prediction or climate forecast is the result of an attempt to produce (starting from a particular state of the climate system) an estimate of the actual evolution of the climate in the future, for example, at seasonal, interannual or decadal time scales.

Because the future evolution of the climate system may be highly sensitive to initial conditions, has chaotic elements and is subject to natural variability, such predictions are usually probabilistic in nature.

semanticClimate annotation

Translations

- HI: जलवायु पूर्वानुमान

WGI

climate governance

The structures, processes and actions through which private and public actors seek to mitigate and adapt to climate change.

Parent-term

- Governance

semanticClimate annotation

From Wikipedia In political ecology and environmental policy, climate governance is the diplomacy, mechanisms and response

measures "aimed at steering social systems towards preventing, mitigating or adapting to the risks posed by climate change".

Translations

- HI: जलवायु प्रशासन

WGIII,WGII

climate index

A time series constructed from climate variables that provides an aggregate summary of the state of the *climate system*.

For example, the difference between sea level pressure in Iceland and the Azores provides a simple yet useful historical *North Atlantic Oscillation (NAO)* index. Because of their optimal properties, climate indices are often defined using *principal components* — linear combinations of climate variables at different locations that have maximum variance subject to certain normalization constraints (e.g., the *Northern Annular Mode (NAM)* and *Southern Annular Mode (SAM)* indices which are principal components of Northern Hemisphere and Southern Hemisphere gridded pressure anomalies, respectively). Definitions of observational indices for *Modes of climate variability* can be found in Annex VI of the AR6 WGI report.

semanticClimate annotation

Translations

- HI: जलवायु सूचकांक

WGI

climate indicator

Measures of the *climate system* including large-scale variables and climate *proxies*.

Sub-terms

- Key climate indicators

semanticClimate annotation

Translations

- HI: जलवायु सूचक

WGI

climate information

Information about the past, current or future state of the *climate system* that is relevant for *mitigation, adaptation* and *risk management*.

It may be tailored or “co-produced” for specific contexts, taking into account users’ needs and values.

semanticClimate annotation

WGI,WGII

climate justice

Justice that links development and human rights to achieve a human-centred approach to addressing climate change, safeguarding the rights of the most vulnerable people and sharing the burdens and benefits of climate change and its impacts equitably and fairly (MRFCJ, 2018).

Parent-term

- Justice

semanticClimate annotation



From Wikipedia Climate justice is a term that recognises "although global warming is a global crisis, its effects are not felt evenly around the world". Climate justice is a faction of Environmental justice and focuses on the equitable distribution of the burdens of climate change and the efforts to mitigate them.

Translations

- HI: जलवायु न्याय

WGIII,WGII

climate literacy

Climate literacy encompasses being aware of climate change, its anthropogenic causes and implications.

semanticClimate annotation

Translations

- HI: जलवायु साक्षरता

WGII

climate metrics

Measures of aspects of the overall *climate system* response to *radiative forcing*, such as *equilibrium climate sensitivity (ECS)*, *transient climate response (TCR)*, *transient climate*

response to cumulative CO₂ emissions (TCRE) and the airborne fraction of anthropogenic carbon dioxide.

semanticClimate annotation

WGI

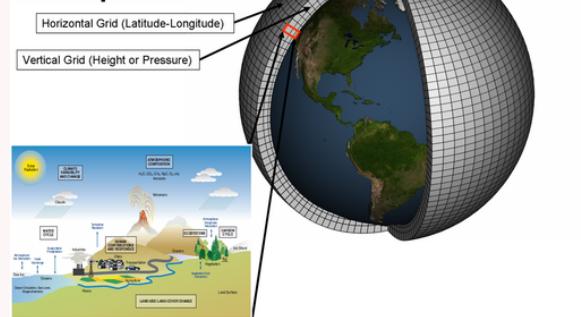
climate model

A qualitative or quantitative representation of the climate system based on the physical, chemical and biological properties of its components, their interactions and feedback processes and accounting for some of its known properties.

The *climate system* can be represented by models of varying complexity; that is, for any one component or combination of components a spectrum or hierarchy of models can be identified, differing in such aspects as the number of spatial dimensions, the extent to which physical, chemical or biological processes are explicitly represented, or the level at which empirical parametrisations are involved. There is an evolution towards more complex models with interactive chemistry and biology. Climate models are applied as a research tool to study and simulate the *climate* and for operational purposes, including monthly, seasonal and interannual *climate predictions*.

semanticClimate annotation

Schematic for Global Atmospheric Model



From Wikipedia Numerical climate models use quantitative methods to simulate the

interactions of the important drivers of climate, including atmosphere, oceans, land surface and ice. They are used for a variety of purposes from study of the dynamics of the climate system to projections of future climate.

WGI, WGIII, WGI

climate pattern

A set of spatially varying coefficients obtained by ‘projection’ (regression) of *climate* variables onto a *climate index* time series.

When the climate index is a principal component, the climate pattern is an eigenvector of the covariance matrix, referred to as an empirical orthogonal function (EOF) in climate science.

semanticClimate annotation

Translations

- HI: जलवायु पैटर्न

WGI

climate prediction

A climate prediction or climate forecast is the result of an attempt to produce (starting from a particular state of the *climate system*) an estimate of the actual evolution of the climate in the future, for example, at seasonal, interannual or decadal time scales.

Because the future evolution of the climate system may be highly sensitive to initial conditions, has chaotic elements and is subject to *natural variability*, such predictions are usually probabilistic in nature.

semanticClimate annotation

Translations

- HI: जलवायु पूर्वानुमान

WGI,WGII

climate projection

Simulated response of the *climate system* to a *scenario* of future emissions or concentrations of *greenhouse gases (GHGs)* and *aerosols* and changes in *land use*, generally derived using *climate models*.

Climate projections are distinguished from *climate predictions* by their dependence on the emission/concentration/radiative forcing *scenario* used, which is in turn based on assumptions concerning, for example, future socio-economic and technological developments that may or may not be realised.

semanticClimate annotation

WGI,WGIII,WGII

climate refugium

A climate refugium is a geographic area that has had a stable climate on evolutionary time scales, or that is projected to have a stable climate into the future.

semanticClimate annotation

WGII

climate resilient development

In the WGII report, climate resilient development refers to the process of implementing greenhouse gas mitigation and adaptation measures to support sustainable development for all.

semanticClimate annotation

WGII

climate resilient development pathways

Trajectories that strengthen sustainable development and efforts to eradicate poverty and reduce inequalities while promoting fair and cross-scalar adaptation to and resilience in a changing climate.

They raise the ethics, equity and feasibility aspects of the deep societal transformation needed to drastically reduce emissions to limit global warming (e.g., to well below 2°C) and achieve desirable and liveable futures and well-being for all.

Parent-term

- Pathways

semanticClimate annotation

WGII
CRDPs

climate-resilient pathways

Iterative processes for managing change within complex systems in order to reduce disruptions and enhance opportunities associated with climate change.

Parent-term

- Pathways

semanticClimate annotation

WGIII,WGII

climate response

A general term for how the climate system responds to a radiative forcing.

semanticClimate annotation

WGI

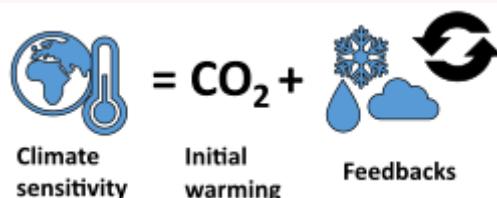
climate sensitivity

The change in the surface temperature in response to a change in the atmospheric carbon dioxide (CO₂) concentration or other radiative forcing.

Sub-terms

- Earth system sensitivity
- Effective equilibrium climate sensitivity
- Equilibrium climate sensitivity (ECS)
- Transient climate response (TCR)
- Transient climate response to cumulative CO₂ emissions (TCRE)

semanticClimate annotation



From Wikipedia Climate sensitivity is a measure of how much Earth's surface will warm for a doubling in the atmospheric carbon dioxide (CO₂) concentration.

Translations

- HI: जलवायु संवेदनशीलता

WGI,WGIII

climate services

Climate services involve the provision of climate information in such a way as to assist decision-making.

The service includes appropriate engagement from users and providers, is based on scientifically credible information and expertise, has an effective access mechanism and responds to user needs (Hewitt et al., 2012).

References

- Hewitt, C., Mason, S. & Walland, D. The Global Framework for Climate Services. *Nature Clim Change* 2, 831–832 (2012). <https://doi.org/10.1038/nclimate1745>

semanticClimate annotation

WGI,WGIII,WGII

climate simulation ensemble

A group of parallel model simulations characterising historical *climate* conditions, *climate predictions*, or *climate projections*.

Variation of the results across the ensemble members may give an estimate of modelling-based uncertainty. Ensembles made with the same model but different initial conditions characterise the uncertainty associated with internal *climate variability*, whereas multi-model ensembles including simulations by several models also include the effect of model differences. Perturbed parameter ensembles, in which model parameters are varied in a systematic manner, aim to assess the uncertainty resulting from internal model specifications within a single model. Remaining sources of uncertainty unaddressed with model ensembles are related to systematic model errors or biases, which may be assessed from systematic comparisons of model simulations with observations wherever available.

semanticClimate annotation

WGI,WGII

climate-smart agriculture

An approach to agriculture that aims to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate by sustainably increasing agricultural productivity and incomes, adapting and building resilience to climate change, and reducing and/or removing greenhouse gas emissions, where possible (FAO, 2018).

semanticClimate annotation



From Wikipedia Climate-smart agriculture (CSA) (or climate resilient agriculture) is an integrated approach to managing land to help adapt agricultural methods, livestock and crops to the effects of climate change and, where possible, counteract it by reducing greenhouse gas emissions from agriculture, while taking into account the growing world population to ensure food security.

Translations

- HI: जलवायु-स्मार्ट कृषि

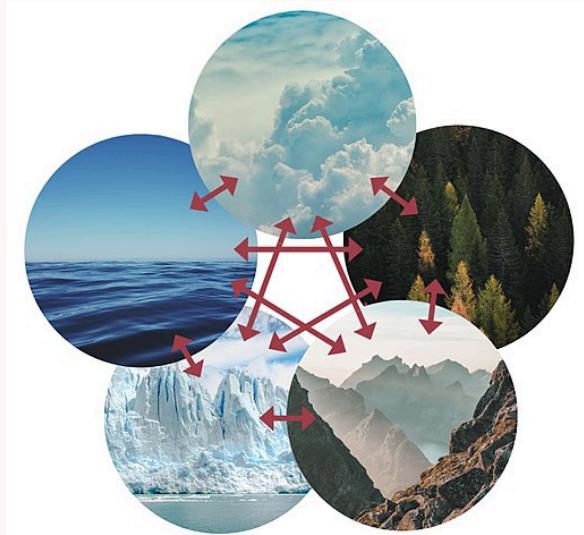
WGII
CSA

climate system

The global system consisting of five major components: the *atmosphere*, the *hydrosphere*, the *cryosphere*, the *lithosphere* and the *biosphere* and the interactions between them.

The climate system changes in time under the influence of its own internal dynamics and because of *external forcings* such as volcanic eruptions, solar variations, orbital forcing, and *anthropogenic* forcings such as the changing composition of the atmosphere and *land-use change*.

semanticClimate annotation



From Wikipedia Earth's climate system is a complex system with five interacting components: the atmosphere (air), the hydrosphere (water), the cryosphere (ice and permafrost), the lithosphere (earth's upper rocky layer) and the biosphere (living things).

Translations

- HI: जलवायु प्रणाली

WGI,WGIII,WGII

climate threshold

A limit within the *climate system* (or its *forcing*) beyond which the behaviour of the system is qualitatively changed.

semanticClimate annotation

Translations

- HI: जलवायु सीमा

WGI

climate variability

Deviations of climate variables from a given mean state (including the occurrence of extremes, etc.) at all spatial and temporal scales beyond that of individual weather events. Variability may be intrinsic, due to fluctuations of processes internal to the *climate system (internal variability)*, or extrinsic, due to variations in natural or anthropogenic *external forcing* (forced variability).

Sub-terms

- Decadal variability
- Internal variability
- Natural variability

semanticClimate annotation

From Wikipedia

Translations

- HI: जलवायु परिवर्तनशीलता

WGI,WGII,WGIII

climate velocity

The speed at which isolines of a specified climate variable travel across landscapes or seascapes due to changing climate.

For example, climate velocity for temperature is the speed at which isotherms move due to changing climate (km yr^{-1}) and is calculated as the temporal change in temperature ($^{\circ}\text{C yr}^{-1}$) divided by the current spatial gradient in temperature ($^{\circ}\text{C km}^{-1}$). It can be calculated using additional climate variables such as precipitation or can be based on the climatic niche of organisms.

semanticClimate annotation

WGII,WGI

climatic driver

A changing aspect of the climate system that influences a component of a human or natural system.

semanticClimate annotation

WGII
Climate driver

climatic impact-driver

Physical *climate system* conditions (e.g., means, events, extremes) that affect an element of society or *ecosystems*.

Depending on system tolerance, CIDs and their changes can be detrimental, beneficial, neutral or a mixture of each across interacting system elements and regions.

semanticClimate annotation

WGI
CID

cloud condensation nuclei

The subset of *aerosol* particles that serve as an initial site for the condensation of liquid water, which can lead to the formation of cloud droplets, under typical cloud formation conditions.

The main factor that determines which *aerosol* particles are CCN at a given supersaturation is their size.

semanticClimate annotation



From Wikipedia Cloud condensation nuclei (CCNs), also known as cloud seeds, are small particles typically $0.2\text{ }\mu\text{m}$, or one hundredth the size of a cloud droplet. CCNs are a unique subset of aerosols in the atmosphere on which water vapour condenses.

Translations

- HI: बादल संघनन नामिक

WGI
CCN

cloud feedback

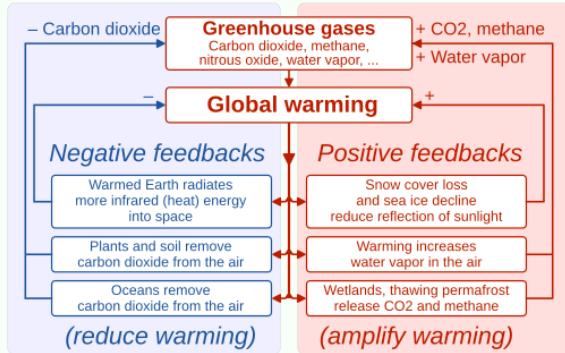
A climate feedback involving changes in any of the properties of clouds as a response to a change in the local or *global* surface temperature.

Understanding cloud feedbacks and determining their magnitude and sign requires an understanding of how a change in *climate* may affect the spectrum of cloud types, the cloud fraction and height, the radiative

properties of clouds, and finally the Earth's radiation budget.

semanticClimate annotation

Climate change feedbacks



From Wikipedia Cloud feedback is a type of climate change feedback that has been difficult to quantify in contemporary climate models. It can affect the magnitude of internally generated climate variability or they can affect the magnitude of climate change resulting from external radiative forcings.

Translations

- HI: बादल प्रतिक्रिया

WGI

cloud radiative effect

The *radiative effect* of clouds relative to the identical situation without clouds.

semanticClimate annotation

WGI

cloud-resolving models

Numerical models that are of high enough resolution and have the necessary physics to represent the dynamical and physical processes of cloud formation.

semanticClimate annotation

WGI
CRMs

co-benefits

A positive effect that a policy or measure aimed at one objective has on another objective, thereby increasing the total benefit to society or the environment.

Co-benefits are also referred to as ancillary benefits.

semanticClimate annotation

Translations

- HI: सह-लाभ

WGIII,WGII

coast

The land near to the sea.

The term 'coastal' can refer to that land (e.g., as in 'coastal communities'), or to that part of the marine environment that is strongly influenced by land-based processes. Thus, coastal seas are generally shallow and near-shore. The landward and seaward limits of the coastal zone are not consistently defined, neither scientifically nor legally. Thus, coastal waters can either be considered as equivalent to territorial waters (extending 12 nautical miles/22.2 km from mean low water), or to the full exclusive economic zone, or to *shelf seas*, with less than 200 m water depth.

semanticClimate annotation



From Wikipedia The coast, also known as the coastline or seashore, is defined as the area where land meets the ocean, or as a line that forms the boundary between the land and the coastline.

Translations

- HI: सागरतट

WGI,WGII

coastal erosion

Coastal erosion, sometimes referred to as shoreline retreat, occurs when a net loss of sediment or bedrock from the shoreline results in landward movement of the high-tide mark.



semanticClimate annotation

WGII

cold days/cold nights

Days where maximum temperature, or nights where minimum temperature, falls below the 10th *percentile*, where the respective temperature distributions are generally defined with respect to the 1961–1990 reference period.

For the corresponding indices, see Box 2.4.

semanticClimate annotation

WGI

common era

CE (Common Era) and BCE (Before the Common Era) are alternative names for AD (Anno Domini) and BC (Before Christ) in the Gregorian international standard calendar-year system.

CE/BCE are preferred in an international context because they are neutral with respect to religion. The numbering of calendar years is the same under both terminologies. The CE began in year AD 1 and extends to the present day.

semanticClimate annotation

WGI

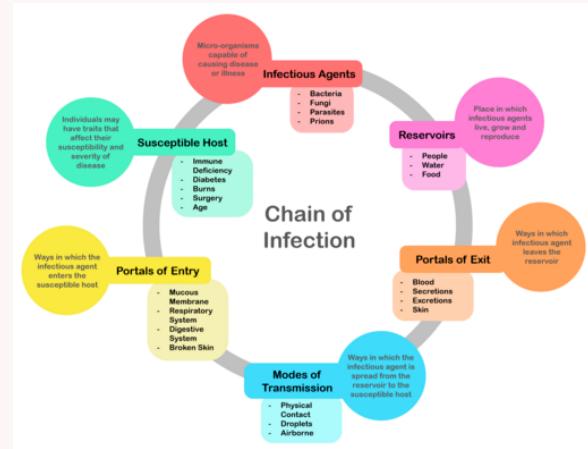
CE

communicable disease

Illness due to a specific infectious agent or its toxic products that arises through transmission of that agent or its products from an infected person, animal or reservoir to a susceptible host, either directly or indirectly through an intermediate plant or animal host, vector or the inanimate environment.

Communicable disease pathogens include bacteria, viruses, fungi, parasites and prions.

semanticClimate annotation



From Wikipedia An infection is the invasion of tissues by pathogens, their multiplication, and the reaction of host tissues to the infectious agent and the toxins they produce.

Translations

- HI: संक्रामक रोग

WGII

community-based adaptation

Local, community-driven adaptation.

Community-based adaptation focuses attention on empowering and promoting the adaptive capacity of communities. It is an approach that takes context, culture, knowledge, agency, and preferences of communities as strengths.

Parent-term

- Adaptation

semanticClimate annotation

WGII

compatible emissions

Earth system models that simulate the land and ocean *carbon cycle* can calculate *2) carbon dioxide (CO₂)* emissions that are compatible with a given atmospheric CO₂ concentration trajectory.

The compatible emissions over a given period of time are equal to the increase of carbon over that same period of time in the sum of the three active *reservoirs*: the *atmosphere*, the land and the ocean.

semanticClimate annotation

Translations

- HI: सांदर्भ परिदृश्य

WGI

compound risks

arise from the interaction of *hazards*, which may be characterised by single extreme events or multiple coincident or sequential events that interact with exposed systems or sectors.

Parent-term

- Risk

semanticClimate annotation

WGII

compound weather/climate events

The terms ‘compound events’, ‘compound extremes’ and ‘compound extreme events’ are used interchangeably in the literature and this report and refer to the combination of multiple *drivers* and/or *hazards* that contributes to societal and/or environmental *risk* (Zscheischler et al., 2018).

semanticClimate annotation

WGI,WGII

concentrations scenario

A plausible representation of the future development of atmospheric concentrations of substances that are radiatively active (e.g., greenhouse gases (GHGs), aerosols, tropospheric ozone), plus human-induced land-cover changes that can be radiatively active via albedo changes, and often used as input to a climate model to compute climate projections.

Parent-term

- Scenario

semanticClimate annotation

WGI,WGII,WGIII

Conference of the Parties

The supreme body of UN conventions, such as the United Nations Framework Convention on Climate Change (UNFCCC), comprising parties with a right to vote that have ratified or acceded to the convention.

UN Climate Change Conference

semanticClimate annotation

WGIII
COP

confidence

The robustness of a finding based on the type, amount, quality and consistency of evidence (e.g., mechanistic understanding, theory, data, models, expert judgement) and on the degree of agreement across multiple lines of evidence.

In this report, confidence is expressed qualitatively (Mastrandrea et al., 2010).

semanticClimate annotation

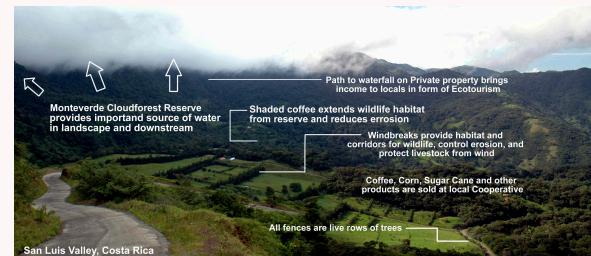
WGI,WGIII,WGII

conservation agriculture

A farming system that promotes minimum soil disturbance (e.g., by using no till practices), maintenance of a permanent soil cover and diversification of plant species.

It aims to prevent land degradation and regenerate degraded lands by enhancing biodiversity and natural biological processes above and below the ground surface, that contribute to increased water and nutrient use efficiency and improved and sustained crop production (FAO, 2016).

semanticClimate annotation



From Wikipedia Conservation agriculture (CA) can be defined by a statement given by the Food and Agriculture Organization of the United Nations as "Conservation Agriculture (CA) is a farming system that can prevent losses of arable land while regenerating degraded lands.

Translations

- HI: संरक्षण कृषि

WGIII,WGII

constant composition commitment

The constant composition commitment is the remaining *climate change* that would result if atmospheric composition, and hence *radiative forcing*, were held fixed at a given value.

It results from the thermal inertia of the ocean and slow processes in the cryosphere and land surface.

Parent-term

- Climate change commitment

semanticClimate annotation

WGI

constant emissions commitment

The constant emissions commitment is the committed *climate change* that would result from keeping *anthropogenic emissions* constant.

Parent-term

- Climate change commitment

semanticClimate annotation

WGI

consumption-based emissions

Emissions released to the atmosphere in order to generate the goods and services consumed by a certain entity (e.g., a person, firm, country, or region).

semanticClimate annotation

WGIII

convection

Vertical motion driven by buoyancy forces arising from static instability, usually caused by near-surface cooling or increases in salinity in the case of the ocean and near-surface warming or cloud-top radiative cooling in the case of the *atmosphere*.

In the atmosphere, convection gives rise to cumulus clouds and precipitation and is effective at both scavenging and vertically transporting chemical species. In the ocean, convection can carry surface waters to deep within the ocean.

semanticClimate annotation

WGI

coping

The use of available skills, resources and opportunities to address, manage and overcome adverse conditions, with the aim of achieving basic functioning of people, institutions, organisations and systems in the short to medium term (UNISDR, 2009; IPCC, 2012a).

semanticClimate annotation

WGII

coping capacity

The ability of people, institutions, organisations and systems, using available skills, values, beliefs, resources, and opportunities, to address, manage and overcome adverse conditions in the short to medium term (UNISDR, 2009; IPCC, 2012).

semanticClimate annotation

WGIII,WGII

coral bleaching

Loss of coral pigmentation through the loss of intracellular symbiotic algae (known as zooxanthellae) and/or loss of their pigments.

semanticClimate annotation

WGI,WGII

coral reef

An underwater *ecosystem* characterised by structure-building stony corals.

Warm-water coral reefs occur in shallow seas, mostly in the tropics, with the corals (animals) containing algae (plants) that depend on light and relatively stable temperature conditions. Cold-water coral reefs occur throughout the world, mostly at water depths of 50–500 m. In both kinds of reef, living corals frequently grow on older, dead material, predominantly made of calcium carbonate (CaCO_3). Both warm and cold-water coral reefs support high biodiversity of fish and other groups, and are considered to be especially vulnerable to *climate change*.



From Wikipedia A coral reef is an underwater ecosystem characterized by reef-building corals. Reefs are formed of colonies of coral polyps held together by calcium carbonate. Most coral reefs are built from stony corals, whose polyps cluster in groups.

semanticClimate annotation

WGI,WGII

cosmogenic radioisotopes

Rare radioactive *isotopes* that are created by the interaction of high-energy cosmic ray particles with atomic nuclei.

They are often used as indicator of solar activity which modulates the cosmic rays' intensity or as tracers of atmospheric transport processes, and are also called cosmogenic radionuclides.

semanticClimate annotation

WGI

cost–benefit analysis

A type of economic evaluation that compares all monetised all monetised negative and positive impacts associated with a given action.

Cost–benefit analysis enables comparison of different interventions, investments or strategies, and reveals how a given investment or policy effort pays off for a particular person, company or country, or at a global scale. Cost–benefit analyses representing society's point of view are important for climate change decision-making, but there are difficulties in aggregating costs and benefits across different actors and across time scales.

semanticClimate annotation

WGIII,WGII

cost-effectiveness analysis

A type of economic evaluation that compares the costs of different courses of action reaching the same outcome. In this report, CEA focuses on comparing the costs of mitigation strategies designed to meet a prespecified climate change mitigation goal (e.g., an emission-reduction target or a temperature stabilisation target).

semanticClimate annotation

WGIII
CEA

Coupled Model Intercomparison Project

A *climate* modelling activity from the World Climate Research Programme (WCRP) which coordinates and archives *climate model* simulations based on shared model inputs by modelling groups from around the world.

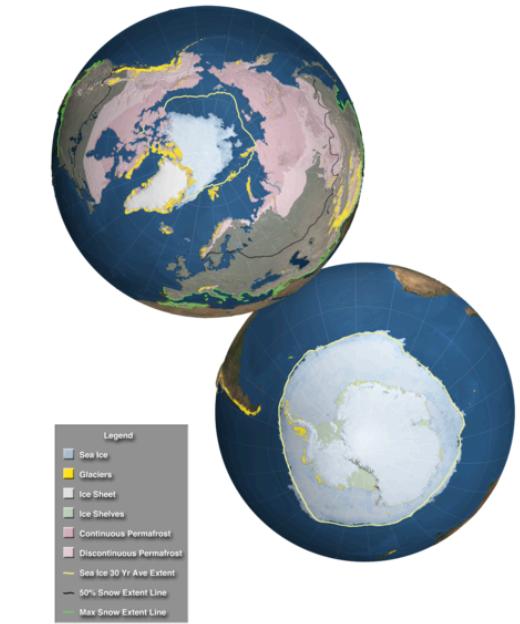
The (CMIP3) multi-model data set includes projections using Special Report on Emissions Scenarios (SRES) scenarios. The (CMIP5) data set includes projections using the Representative Concentration Pathways (RCP). The CMIP6 phase involves a suite of common model experiments as well as an ensemble of CMIP-endorsed Model Intercomparison Projects (MIPs).

semanticClimate annotation

WGI,WGII
CMIP

cryosphere

The components of the Earth system at and below the *land* and *ocean* surface that are frozen, including snow cover, *glaciers*, *ice sheets*, *ice shelves*, *icebergs*, *sea ice*, lake ice, river ice, *permafrost* and seasonally *frozen ground*.



semanticClimate annotation

WGI,WGII

cultural impacts

Impacts on material and ecological aspects of culture and the lived experience of culture, including dimensions such as identity, community cohesion and belonging, sense of place, worldview, values, perceptions, and tradition.

Cultural impacts are closely related to ecological impacts, especially for iconic and representational dimensions of species and landscapes. Culture and cultural practices frame the importance and value of the impacts of change, shape the feasibility and acceptability of adaptation options, and provide the skills and practices that enable adaptation.

semanticClimate annotation

WGII

cumulative emissions

The total amount of emissions released over a specified period of time.

semanticClimate annotation

WGIII,WGI

D

Dansgaard-Oeschger events

Millennial-scale events first characterized in Greenland *ice cores* as abrupt warming from a cold *stadial* state to a warmer *interstadial* state, followed by a return to a cold stadial state (Dansgaard et al., 1993), and traced in the ocean via deposits of ice-rafterd sand grains (Bond and Lotti, 1995).

Named after Willi Dansgaard and Hans Oeschger by Bond and Lotti (1995). An example of a D-O event during the most recent *deglacial* transition is the Bølling–Allerød interstadial. Warm D-O events in Greenland are associated with cooling events in Antarctica (Blunier and Brook, 2001) through ocean *thermohaline circulation* (Stocker and Johnsen, 2003).

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bipolar seesaw. *Paleoceanography*, 18(4), doi:10.1029/2003pa000920.

semanticClimate annotation

WGI
D-O events

data assimilation

Mathematical method used to combine different sources of information in order to produce the best possible estimate of the state of a system.

This information usually consists of observations of the system and a numerical model of the system evolution. Data assimilation techniques are used to create initial conditions for weather forecast models and to construct *reanalyses* describing the trajectory of the *climate system* over the time period covered by the observations.

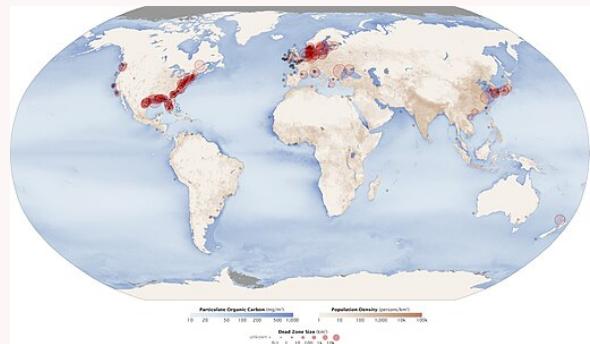
semanticClimate annotation

WGI

dead zones

Extremely *hypoxic* (i.e., low-oxygen) areas in oceans and lakes, caused by excessive nutrient input from human activities coupled with other factors that deplete the oxygen required to support many marine organisms in bottom and near-bottom water.

semanticClimate annotation



From Wikipedia Dead zones are hypoxic (low-oxygen) areas in the world's oceans and large lakes. Hypoxia occurs when dissolved oxygen (DO) concentration falls to or below 2 mg of O₂/liter.

WGI

decadal predictability

Refers to the notion of *predictability* of the *climate system* on a decadal time scale.

semanticClimate annotation

Translations

- HI: દશકીય પૂર્વનુમેયતા

WGI

decadal prediction

A *climate prediction* on decadal time scales.

semanticClimate annotation

WGI

decadal variability

Decadal variability refers to *climate variability* on decadal time scales.

Parent-term

- Climate variability

semanticClimate annotation

WGI

decarbonisation

Human actions to reduce carbon dioxide emissions from human activities.

semanticClimate annotation

WGIII,WGII

Decent Living Standard

A set of minimal material requirements essential for achieving basic human well-being including nutrition, shelter, basic living conditions, clothing, healthcare, education, and mobility (Rao and Baer 2012; Rao and Min 2018; O'Neill et al.

2018).

References

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semanticClimate annotation

WGIII

decoupling

Decoupling (in relation to climate change) is where economic growth is no longer strongly associated with another relevant indicator such as greenhouse gas emissions.

Relative decoupling is where both these indicators grow but the other indicators grow more slowly than the economy. Absolute decoupling is where there is economic growth but there is a decline in the other indicator.

semanticClimate annotation

WGIII

deep uncertainty

A situation of deep uncertainty exists when experts or stakeholders do not know or cannot agree on: (1) appropriate conceptual models that describe relationships among key driving forces in a system, (2) the probability distributions used to represent uncertainty about key variables and parameters and/or (3) how to weigh and value desirable alternative outcomes (Lempert et al., 2003).

Parent-term

- Uncertainty

semanticClimate annotation

WGII,WGI

deforestation

Conversion of forest to non-forest.

[Note: For a discussion of the term forest and related terms such as afforestation, reforestation and deforestation, see the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and their 2019 Refinement, and information provided by the United Nations Framework Convention on Climate Change (IPCC 2006, 2019; UNFCCC 2021a, b).]

References

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semanticClimate annotation

WGI,WGIII,WGII

deglacial or deglaciation or glacial termination

The period of transition from *glacial* conditions at the end of a glacial period to interglacial conditions characterized by a reduction in land ice volume.

Gradual changes can be punctuated by abrupt changes linked to stadial/interstadial events and bipolar seesaw aspect. The last deglacial transition occurred between about 18,000 and 11,000 years ago. It encompasses rapid events such as Meltwater Pulse 1A (MWP-1A) and

millennial-scale fluctuations such as the *Younger Dryas*.

semanticClimate annotation

WGI

deliberate transformations

A profound shift towards sustainability, envisioned and intended by at least some societal actors, facilitated by changes in individual and collective values and behaviours, and a fairer balance of political, cultural, and institutional power in society.

Parent-term

- Transformation

semanticClimate annotation

WGII

deliberative governance

Deliberative governance involves decision making through inclusive public conversation which allows opportunity for developing policy options through public discussion rather than collating individual preferences through voting or referenda (although the latter governance mechanisms can also be proceeded and legitimated by public deliberation processes).

Parent-term

- Governance

semanticClimate annotation

WGIII

demand

Disciplinary approaches use the term in different ways.

In economics, demand by a consumer is willingness and ability to purchase in a marketplace. However, the motivation for purchase may vary and can include economic utility, welfare, Decent standard of living (DSL), or for the good/services.

semanticClimate annotation

WGIII

demand- and supply-side measures

Sub-terms

- Demand-side measures
- Supply-side measures

semanticClimate annotation

WGIII

demand-side measures

Policies and programmes for influencing the demand for goods and/or services.

In the energy sector, demand-side mitigation measures aim at reducing the amount of greenhouse gas emissions emitted per unit of energy service used.

Parent-term

- Demand- and supply-side measures

semanticClimate annotation

WGIII

desertification

Land degradation in arid, semi-arid, and dry sub-humid areas resulting from many factors, including climatic variations and human activities (UNCCD, 1994).



From Wikipedia Desertification is a type of land degradation in drylands in which biological productivity is lost due to natural processes or induced by human activities whereby fertile areas become arid.

semanticClimate annotation

WGIII,WGII

detection

Detection of change is defined as the process of demonstrating that climate or a system affected by climate has changed in some defined statistical sense, without providing a reason for that change.

An identified change is detected in observations if its likelihood of occurrence by chance due to internal variability alone is determined to be small, for example, <10%.

semanticClimate annotation

WGI,WGII

detection and attribution

See [Attribution](#) and [Detection](#)

semanticClimate annotation

WGI,WGII

developed/developing countries

There is a diversity of approaches for categorising countries on the basis of their level of development, and for defining terms such as 'industrialised', 'developed' or 'developing'.

Several categorisations are used in this report. (1) In the United Nations (UN) system, there is no established convention for the designation of developed and developing countries or areas. (2) The UN Statistics Division specifies developed and developing regions based on common practice. In addition, specific countries are designated as Least Developed Countries, landlocked developing countries, Small Island Developing States (SIDS) and transition economies. Many countries appear in more than one of these categories. (3) The World Bank uses income as the main criterion for classifying countries as low, lower middle, upper middle and high income. (4) The UN Development Programme (UNDP) aggregates indicators for life expectancy, educational attainment and income into a single composite Human Development Index (HDI) to classify countries as low, medium, high or very high human development.

semanticClimate annotation

WGIII,WGII
Industrialised/developed/developing countries

development pathways

Development pathways evolve as the result of the countless decisions being made and actions being taken at all levels of societal structure, as well due to the emergent dynamics within and between institutions, cultural norms, technological systems and other drivers of behavioural change.

Parent-term

- Pathways

semanticClimate annotation

WGII,WGIII

diatoms

Microscopic (2–200 µm) unicellular photosynthetic algae that live in surface waters of lakes, rivers and oceans and form shells of opal.

In the global ocean, marine diatom species distribution is primarily driven by nutrient availability. On regional scales, their species distribution in ocean sediment cores can be related to past *sea surface temperatures* (Abrantes et al., 2013).

semanticClimate annotation

WGII,WGI

diet

The kinds of food that follow a particular pattern that a person or community eats (FAO and Alliance of Biodiversity International and CIAT, 2021).

semanticClimate annotation

WGIII,WGII

dimensions of integration

In IPCC AR6, concepts used to synthesize the knowledge of *climate change* across not just the physical sciences, but also across *impacts, adaptation, and mitigation* research.

The concept of 'dimensions of integration' includes (i) emission and concentration

scenarios underlying the climate change projections assessed in this report, (ii) levels of projected global mean temperature change and (iii) total amounts of cumulative carbon emissions for projections.

semanticClimate annotation

WGI

direct air capture

Chemical process by which a pure carbon dioxide (CO₂) stream is produced by capturing CO₂ from the ambient air.

From Wikipedia The carbon dioxide (CO₂) is captured directly from the ambient air; this is contrast to carbon capture and storage (CCS) which captures CO₂ from point sources, such as a cement factory or a bioenergy plant.

semanticClimate annotation

WGI, WGIII
DAC

direct air carbon dioxide capture and storage

Chemical process by which carbon dioxide (CO₂) is captured directly from the ambient air, with subsequent storage.

Also known as direct air capture and storage (DACS).

semanticClimate annotation

WGIII
DACCs

direct and indirect services

Direct Services: Services (e.g., passenger mobility) required by end-users (consumers).

Indirect services: Services required (e.g., goods transport, manufacturing) for provisioning systems of direct services.

semanticClimate annotation

WGIII

direct emissions

Emissions that physically arise from activities within well-defined boundaries of, for instance, a region, an economic sector, a company, or a process.

semanticClimate annotation

WGI,WGIII

disaster

A ‘serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts’ (UNGA, 2016).



From Wikipedia A disaster is a serious problem occurring over a period of time that causes widespread human, material, economic or environmental loss which exceeds the ability of

the affected community or society to cope using its own resources.

semanticClimate annotation

WGI,WGIII,WGII

disaster management

Social processes for designing, implementing, and evaluating strategies, policies, and measures that promote and improve disaster preparedness, response, and recovery practices at different organisational and societal levels.

semanticClimate annotation

WGII

disaster risk

The likelihood over a specified time period of severe alterations in the normal functioning of a community or a society due to hazardous physical events interacting with vulnerable social conditions, leading to widespread adverse human, material, economic, or environmental effects that require immediate emergency response to satisfy critical human needs and that may require external support for recovery.

semanticClimate annotation

WGII

disaster risk management

Processes for designing, implementing and evaluating strategies, *policies* and measures to improve the understanding of current and future *disaster risk*, foster *disaster risk reduction* and transfer, and promote continuous improvement in *disaster* preparedness, prevention and protection, response and recovery practices, with the explicit purpose of increasing *human*

security, well-being, quality of life and sustainable development (SD).

semanticClimate annotation

WGIII, WGII
DRM

disaster risk reduction

Denotes both a policy goal or objective, and the strategic and instrumental measures employed for anticipating future disaster risk; reducing existing exposure, hazard, or vulnerability; and improving resilience.

From Wikipedia Disaster risk reduction (DRR) sometimes called disaster risk management (DRM) is a systematic approach to identifying, assessing and reducing the risks of disaster. It aims to reduce socio-economic vulnerabilities to disaster as well as dealing with the environmental and other hazards that trigger them.

semanticClimate annotation

WGII
DRR

discharge

Rate of the flow of ice through a vertical section of a glacier perpendicular to the direction of the flow of ice.

Often used to refer to the loss of mass at marine-terminating glacier fronts (mostly calving of icebergs and submarine melt), or to mass flowing across the grounding line of a floating ice shelf.

Parent-term

- Mass balance/budget (of glaciers or ice sheets)

semanticClimate annotation

WGI
of ice

discounting

A mathematical operation that aims to make monetary (or other) amounts received or expended at different times (years) comparable across time.

If the discount rate is positive, future values are given less weight than those today. The choice of discount rate(s) is debated as it is a judgement based on hidden and/or explicit values.

From Wikipedia In finance, discounting is a mechanism in which a debtor obtains the right to delay payments to a creditor, for a defined period of time, in exchange for a charge or fee.

semanticClimate annotation

WGIII,WGII

disruptive innovation

Demand-led technological change that leads to significant system change and is characterised by strong exponential growth.

From Wikipedia

semanticClimate annotation

WGIII

dissolved inorganic carbon

The combined total of different types of non-organic carbon in (seawater) solution, comprising carbonate (CO_3^{2-}), bicarbonate (HCO_3^-), carbonic acid (H_2CO_3) and *carbon dioxide* (CO_2).

From Wikipedia Inorganic carbon is found primarily in simple compounds such as carbon dioxide, carbonic acid, bicarbonate, and carbonate (CO_2 , H_2CO_3 , HCO_3^- , CO_3^{2-} respectively). Dissolved inorganic carbon (DIC) includes three major aqueous species, CO_2 , HCO_3^- , CO_3^{2-} , and to a lesser extent their complexes in solution with metal ions.

semanticClimate annotation

WGI

distributive equity

Equity in the consequences, outcomes, costs and benefits of actions or policies.

In the case of climate change or climate policies for different people, places and countries, including equity aspects of sharing burdens and benefits for mitigation and adaptation.

Parent-term

- Equity

semanticClimate annotation

WGIII

diurnal temperature range

The difference between the maximum and minimum temperature during a 24-hour period.

semanticClimate annotation

WGI

DTR

dobson unit

A unit to measure the total amount of *ozone* in a vertical column above the Earth's surface (total column ozone).

The number of Dobson units is the thickness in units of 10^{-5} m that the *ozone* column would occupy if compressed into a layer of uniform density at a pressure of 1013 hPa and a temperature of 0°C. One DU corresponds to a column of ozone containing 2.69×10^{20} molecules per square metre. A typical value for the amount of ozone in a column of the Earth's *atmosphere*, although very variable, is 300 DU.

From Wikipedia The Dobson unit (DU) is a unit of measurement of the amount of a trace gas in a vertical column through the Earth's atmosphere. It originated, and continues to be primarily used in respect to, atmospheric ozone, whose total column amount, usually termed "total ozone", and sometimes "column abundance", is dominated by the high concentrations of ozone in the stratospheric ozone layer.

semanticClimate annotation

WGI
DU

downscaling

A method that derives local- to regional-scale information from larger-scale models or data analyses.

Two main methods exist: dynamical downscaling and empirical/statistical downscaling. The dynamical method uses the output of regional climate models, global models with variable spatial resolution, or high-resolution global models. The empirical/statistical methods are based on observations and develop statistical relationships that link the large-scale atmospheric variables with local/regional climate variables. In all cases, the quality of the driving model remains an important limitation on the

quality of the downscaled information. The two methods can be combined, for example, applying empirical/statistical downscaling to the output of a regional climate model, consisting of a dynamical downscaling of a global climate model.

semanticClimate annotation

WGI,WGII

drainage

Artificial lowering of the soil water table (IPCC, 2013).

semanticClimate annotation

WGII

driver

Any natural or human-induced factor that directly or indirectly causes a change in a system (adapted from MA, 2005).

Sub-terms

- Non-climatic driver (Non-climate driver)

semanticClimate annotation

WGII

drought

An exceptional period of water shortage for existing ecosystems and the human population (due to low rainfall, high temperature and/or wind).

Sub-terms

- Agricultural and ecological drought
- Hydrological drought

- Megadrought
- Meteorological drought



From Wikipedia A drought is a period of drier-than-normal conditions. A drought can last for days, months or years. Drought often has large impacts on the ecosystems and agriculture of affected regions, and causes harm to the local economy.

semanticClimate annotation

WGI,WGIII,WGII

dynamic global vegetation model

A model that simulates vegetation development and dynamics through space and time, as driven by climate and other environmental changes.



From Wikipedia A Dynamic Global Vegetation Model (DGVM) is a computer program that simulates shifts in potential vegetation and its associated biogeochemical and hydrological cycles as a response to shifts in climate. DGVMs use time series of climate data and, given constraints of latitude, topography, and soil characteristics, simulate monthly or daily dynamics of ecosystem processes.

semanticClimate annotation

WGI
DGVM

dynamical system

A process or set of processes whose evolution in time is governed by a set of deterministic physical laws.

The climate system is a dynamical system.

semanticClimate annotation

WGI

E

Early Eocene Climatic Optimum

The EECO is a period of geological time that occurred about 53 to 49 million years ago, during the Eocene Epoch.

Continental positions at this time were somewhat different to present due to tectonic plate movements. Geological data indicate that the EECO was a period of relatively high atmospheric CO₂ concentrations (about 1150–2500 ppmv) and relative warmth (*global mean surface temperature* was about 10–18 °C above the 1850–1900 reference), and polar *ice sheets* were absent.

semanticClimate annotation

WGI
EECO

early warning systems

The set of technical and institutional capacities to forecast, predict, and communicate timely and meaningful warning information to enable individuals, communities, managed ecosystems, and organisations threatened by a hazard to prepare to act promptly and appropriately to reduce the possibility of harm or loss.

Depending upon context, EWS may draw upon scientific and/or Indigenous knowledge, and other knowledge types. EWS are also considered for ecological applications, e.g., conservation, where the organisation itself is not threatened by hazard but the ecosystem under conservation is (e.g., coral bleaching alerts), in agriculture (e.g., warnings of heavy rainfall, drought, ground frost, and hailstorms) and in fisheries (e.g., warnings of storm, storm surge, and tsunamis).

semanticClimate annotation

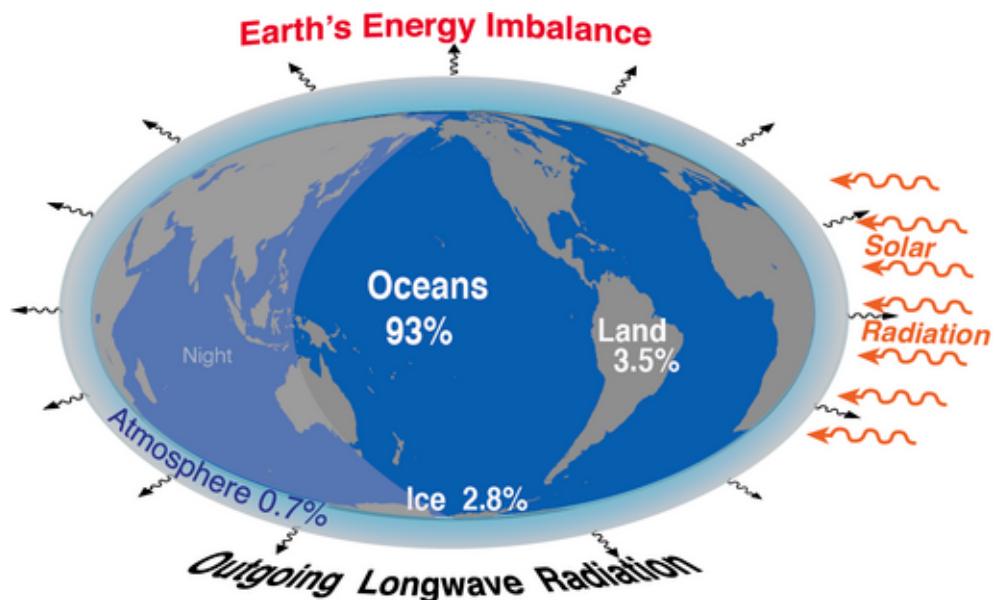
WGII

earth's energy budget

encompasses the major energy flows of relevance for the *climate system*: the top-of-atmosphere energy budget; the surface energy budget; changes in the global energy inventory and internal flows of energy within the climate system that characterize the climate state.

Sub-terms

- Global energy budget
- Global energy inventory
- Surface energy budget
- Top-of-atmosphere energy budget



From Wikipedia Earth's energy budget (or Earth's energy balance) accounts for the balance between the energy that Earth receives from the Sun and the energy the Earth loses back into outer space. Smaller energy sources, such as Earth's internal heat, are taken into consideration, but make a tiny contribution compared to solar energy. The energy budget also accounts for how energy moves through the climate system.

semanticClimate annotation

earth's energy flows

The time-mean (or representative) energy exchanges within the *climate system* (including energy energy exchanges at the surface and top-of-atmosphere).

This also includes horizontal ocean and atmospheric heat transports.

semanticClimate annotation

WGI

earth's energy imbalance

The persistent and positive (downward) net top of atmosphere energy flux associated with greenhouse gas *forcing* of the *climate system*.

semanticClimate annotation

WGI

earth's radiative response

The product of *global mean surface air temperature (GSAT)* change and the net feedback parameter (i.e.

sum of all feedbacks), which determines the net top-of-atmosphere radiative flux that opposes a change in *radiative forcing*. Units: W m^{-2} .

semanticClimate annotation

WGI

earth system feedbacks

See Climate feedback.

semanticClimate annotation

WGI

earth system model

A coupled *atmosphere–ocean* general circulation model (AOGCM) in which a representation of the *carbon cycle* is included, allowing for interactive calculation of atmospheric *carbon dioxide (CO₂)* or compatible emissions.

Additional components (e.g., atmospheric chemistry, *ice sheets*, dynamic vegetation, nitrogen cycle, but also urban or crop models) may be included.

semanticClimate annotation

WGII,WGI
ESM

earth system model of intermediate complexity

EMICs represent *climate* processes at a lower *resolution* or in a simpler, more idealized fashion than an *Earth system model (ESM)*.

semanticClimate annotation

WGI
EMIC

earth system sensitivity

The equilibrium surface temperature response of the coupled *atmosphere–ocean–cryosphere–vegetation–carbon cycle* system to a doubling of the atmospheric carbon dioxide (CO₂) concentration is referred to as Earth system sensitivity.

Because it allows ice sheets to adjust to the external perturbation, it may differ substantially from the *equilibrium climate sensitivity* derived from coupled atmosphere–ocean models.

Parent-term

- *Climate sensitivity*

semanticClimate annotation

WGI

East Asian monsoon

The East Asian monsoon (EAsiaM) is the seasonal reversal in wind and precipitation occurring over East Asia, including eastern China, Japan and the Korean peninsula.

In contrast to the other monsoons it extends quite far north, out of the tropical belt, and it is largely influenced by subtropical systems and by disturbances from the mid-latitudes. The EAsiaM manifests during boreal summer with warm and wet southerly winds, but also during boreal winter with cold and dry northerly winds. In late April/early May, rainfall onsets in the central Indochina Peninsula, and in mid-June the rainy season arrives over East Asia with the formation of the Meiyu front along the Yangtze River valley, Changma in Korea and Baiu in Japan. In July, the monsoon advances up to North China, the Korean peninsula and central Japan. During boreal winter, strong north-westerlies manifest over north and north-east China, Korea and Japan, while strong north-easterlies arrive along the coast of East Asia. Further details on how EAsiaM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

From Wikipedia The East Asian Monsoon is a monsoonal flow that carries moist air from the Indian Ocean and Pacific Ocean to East Asia. It affects approximately one-third of the global population, influencing the climate of Japan, the Korean Peninsula, Taiwan, China, the Philippines and Mainland Southeast Asia but most significantly Vietnam. It is driven by temperature differences between the East Asian continent and the Pacific Ocean.

semanticClimate annotation

WGI
EAsiaM

Eastern Pacific El Niño

An El Niño event in which *sea surface temperature* anomalies are largest in the eastern tropical Pacific.

Parent-term

- El Niño–Southern Oscillation (ENSO)

semanticClimate annotation

WGI

eastern boundary upwelling systems

Eastern boundary upwelling systems (EBUS) are located at the eastern (landward) edges of major ocean basins in both hemispheres, where equatorward winds drive upwelling currents that bring cool, nutrient-rich (and often oxygen-poor) waters from the deep ocean to the surface near the coast.

semanticClimate annotation

WGI,WGII
EBUS

economic potential

The portion of the technical potential for which the social benefits exceed the social costs, taking into account a social discount rate and the value of externalities.

Parent-term

- Mitigation potential

From Wikipedia

semanticClimate annotation

WGIII,WGI

ecosystem

A functional unit consisting of living organisms, their non-living environment and the interactions within and between them.

The components included in a given ecosystem and its spatial boundaries depend on the purpose for which the ecosystem is defined: in some cases they are relatively sharp, while in others they are diffuse. Ecosystem boundaries can change over time. Ecosystems are nested within other ecosystems, and their scale can range from very small to the

entire biosphere. In the current era, most ecosystems either contain people as key organisms or are influenced by the effects of human activities in their environment.



From Wikipedia An ecosystem (or ecological system) consists of all the organisms and the physical environment with which they interact. These biotic and abiotic components are linked together through nutrient cycles and energy flows. Energy enters the system through photosynthesis and is incorporated into plant tissue.

semanticClimate annotation

WGI,WGIII,WGII

ecosystem-based adaptation

The use of ecosystem management activities to increase the *resilience* and reduce the *vulnerability* of people and *ecosystems* to *climate change* (Campbell et al., 2009).

Parent-term

- Adaptation

From Wikipedia Ecosystem-based adaptation (EBA) encompasses a broad set of approaches to adapt to climate change. They all involve the management of ecosystems and their services to reduce the vulnerability of human communities to the impacts of climate change.

semanticClimate annotation

WGII,WGIII
EbA

ecosystem health

Ecosystem health is a metaphor used to describe the condition of an ecosystem, by analogy with human *health*.

Note that there is no universally accepted benchmark for a healthy ecosystem. Rather, the apparent health status of an *ecosystem* is judged on the *ecosystem's resilience* to change, with details depending upon which metrics are employed in judging it and which societal aspirations are driving the assessment (following IPBES 2019).



From Wikipedia Ecosystem health is a metaphor used to describe the condition of an ecosystem. Ecosystem condition can vary as a result of fire, flooding, drought, extinctions, invasive species, climate change, mining, fishing, farming or logging, chemical spills, and a host of other reasons.

semanticClimate annotation

WGII

ecosystem services

Ecological processes or functions having monetary or non-monetary value to individuals or society at large.

These are frequently classified as (1) supporting services such as productivity or biodiversity maintenance, (2) provisioning services such as food or fibre, (3) regulating services such as climate regulation or carbon

sequestration, and (4) cultural services such as tourism or spiritual and aesthetic appreciation.

semanticClimate annotation

WGIII,WGII

effective equilibrium climate sensitivity

An estimate of the surface temperature response to a doubling of the atmospheric *carbon dioxide (CO₂)* concentration that is evaluated from model output or observations for evolving non-equilibrium conditions.

It is a measure of the strengths of the *climate feedbacks* at a particular time and may vary with *forcing* history and climate state, and therefore may differ from *equilibrium climate sensitivity*.

Parent-term

- Climate sensitivity

semanticClimate annotation

WGI

effective radiative forcing due to aerosol–cloud interactions

The final *radiative forcing* (or effect) from the *aerosol* perturbation, including the adjustments to the initial change in droplet or crystal formation rate. These adjustments include changes in the strength of *convection*, precipitation efficiency, cloud fraction, *lifetime* or water content of clouds, and the formation or suppression of clouds in remote areas due to altered circulations.

Parent-term

- Aerosol–cloud interaction

semanticClimate annotation

WGI
ERFaci

or effect

effective radiative forcing due to aerosol–radiation interactions

The final radiative forcing (or effect) from the aerosol perturbation, including adjustments to the initial change in radiation. These adjustments include changes in cloud caused by the impact of the radiative heating on convective or larger-scale atmospheric circulations, traditionally known as semi-direct aerosol forcing (or effect).

Parent-term

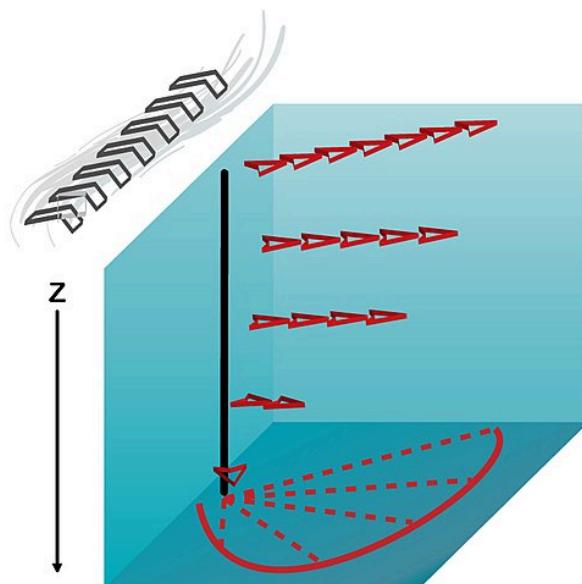
- Aerosol–radiation interaction

semanticClimate annotation

WGI
ERFari
or effect

ekman transport

The total transport resulting from a balance between the Coriolis force and the frictional stress due to the action of the wind on the ocean surface.



From Wikipedia Ekman transport occurs when ocean surface waters are influenced by the friction force acting on them via the wind.

semanticClimate annotation

WGI

El Niño–Southern Oscillation

The term El Niño was initially used to describe a warm-water current that periodically flows along the coast of Ecuador and Peru, disrupting the local fishery.

It has since become identified with warming of the tropical Pacific Ocean east of the dateline. This oceanic event is associated with a fluctuation of a global-scale tropical and subtropical surface pressure pattern called the Southern Oscillation. This coupled atmosphere–ocean phenomenon, with preferred time scales of two to about seven years, is known as the El Niño–Southern Oscillation (ENSO). The warm and cold phases of ENSO are called El Niño and La Niña, respectively. ENSO is often measured by the surface pressure anomaly difference between Tahiti and Darwin and/or the sea surface temperatures in the central and eastern equatorial Pacific. This phenomenon has a great impact on the wind, sea surface temperature and precipitation patterns in the tropical Pacific. It has climatic effects throughout the Pacific region and in many other parts of the world through global *teleconnections*. See Section AIV.2.3 in Annex IV of the AR6 WGI report.

Sub-terms

- Central Pacific El Niño
- Eastern Pacific El Niño

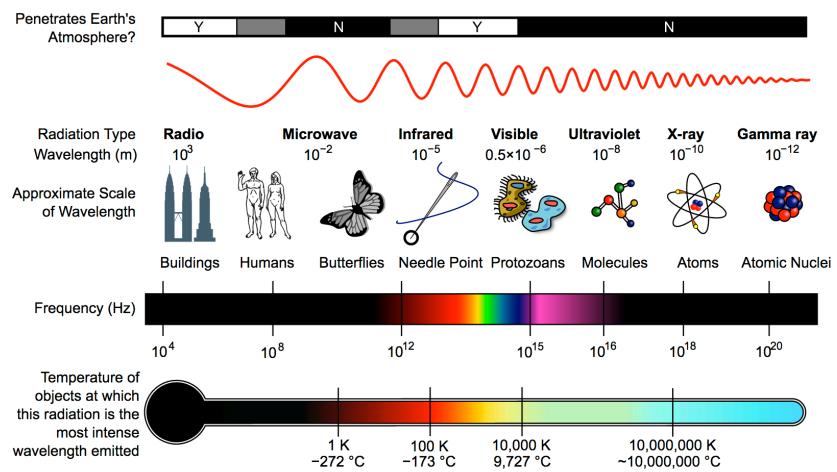
semanticClimate annotation

WGI, WGII
ENSO

electromagnetic spectrum

Wavelength, frequency or energy range of all electromagnetic radiation.

In terms of solar radiation, the spectral irradiance is the power arriving at the Earth per unit area, per unit wavelength.



From Wikipedia The electromagnetic spectrum is the range of frequencies (the spectrum) of electromagnetic radiation and their respective wavelengths and photon energies.

semanticClimate annotation

WGI

elevation-dependent warming

Characteristic of many regions where mountains are located, in which past and/or future surface air temperature changes vary neither uniformly nor linearly with elevation.

In many cases, warming is enhanced within or above a certain elevation range.

semanticClimate annotation

WGI
EDW

embodied [emissions, water, land]

The total emissions [water use, *land use*] generated [used] in the production of goods and services regardless of the location and timing of those emissions [water use, land use] in the production process.

This includes emissions [water use, land use] within the country used to produce goods or services for the country's own use, but also includes the emissions [water use, land use] related to the production of such goods or services in other countries that are then consumed in another

country through imports. Such emissions [water, land] are termed 'embodied' or 'embedded' emissions, or in some cases, (particularly with water) as 'virtual water use' (Davis and Caldeira, 2010; Allan, 2005; MacDonald et al., 2015).

semanticClimate annotation

WGIII
embedded

emergence

Emergence of a *climate change* signal or trend refers to when a change in *climate* (the 'signal') becomes larger than the amplitude of natural or internal variations (defining the 'noise'). This concept is often expressed as a 'signal-to-noise' ratio and emergence occurs at a defined threshold of this ratio (e.g., S/N > 1 or 2).

Emergence can refer to changes relative to a historical or modern baseline (usually at least 20 years long) and can also be expressed in terms of time (*time of emergence*) or in terms of a global warming level. Emergence is also used to refer to a time when we can expect to see a response to reducing *greenhouse gas (GHG)* emissions (emergence with respect to *mitigation*). Emergence can be estimated using observations and/or model simulations.

semanticClimate annotation

WGI,WGII
of the climate signal

emergent constraint

An attempt to reduce the uncertainty in climate projections, using an ensemble of Earth system models (ESMs) to relate a specific feedback or future change to an observation of the past or current climate (typically some trend, variability or change in variability).

semanticClimate annotation

WGI

Emission and Socio-economic Scenario Ensemble

A set of modelled emission and socio-economic scenarios collected in a database.

The scenarios can come from a single multi-model study with systematic variation of harmonised scenario designs (structured ensemble) or from multiple studies in the literature (unstructured ensemble). Depending on the scope of the ensemble, variation of the results across the scenarios in the ensemble give an indication of the spread of results in the literature (unstructured ensemble), or an estimate of uncertainties due to different modelling structures and methodologies (structured ensemble).

semanticClimate annotation

WGIII

Emission factor/Emissions intensity

A coefficient that quantifies the emissions or removals of a gas per unit activity. Emission factors are often based on a sample of measurement data, averaged to develop a representative rate of emission for a given activity level under a given set of operating conditions.

From Wikipedia

semanticClimate annotation

WGIII,WGI

emission pathways

Modelled trajectories of global anthropogenic emissions over the 21st century.

Parent-term

- [Pathways](#)

semanticClimate annotation

WGII,WGIII,WGI

emission trajectories

A projected development in time of the emission of a greenhouse gas (GHG) or group of GHGs, aerosols, and GHG precursors.

semanticClimate annotation

WGIII

emissions scenario

A plausible representation of the future development of emissions of substances that are radiatively active (e.g., *greenhouse gases (GHGs)* or *aerosols*), plus human-induced land-cover changes that can be radiatively active via albedo changes, based on a coherent and internally consistent set of assumptions about driving forces (such as demographic and socio-economic development, technological change, energy and *land use*) and their key relationships.

Concentration scenarios, derived from emission scenarios, are often used as input to a *climate model* to compute *climate projections*.

Parent-term

- Scenario

semanticClimate annotation

WGI,WGII,WGIII

emulation

Reproducing the behaviour of complex, process-based models (namely, *Earth system models, ESMs*) via simpler approaches, using either *emulators* or *simple climate models (SCMs)*.

The computational efficiency of emulating approaches opens new analytical possibilities given that ESMs take a lot of computational resources for each simulation.

semanticClimate annotation

WGI,WGIII

emulators

A broad class of heavily parametrized models ('simple climate models'), statistical methods like neural networks, genetic algorithms or other artificial intelligence approaches, designed to reproduce the responses of more complex, process-based Earth system models (ESMs).

The main application of emulators is to extrapolate insights from ESMs and observational constraints to a larger set of emission scenarios.

semanticClimate annotation

WGI,WGIII

enabling conditions

Conditions that enhance the *feasibility* of *adaptation* and *mitigation* options.

Enabling conditions include finance, technological innovation, strengthening policy instruments, *institutional capacity*, *multi-level governance*, and changes in *human behaviour* and lifestyles.

semanticClimate annotation

WGIII,WGII
for adaptation and mitigation options

endemic species

Plants and animals that are only found in one geographic region.

semanticClimate annotation

From Wikipedia Endemism is the state of being a species found in a single defined geographic location, such as an island, state, nation, country or other defined zone; organisms that are indigenous to a place are not endemic to it if they are also found elsewhere.

Translations

- HI: स्थानिक प्रजातियों

WGII

energy access

Access to clean, reliable and affordable energy services for cooking and heating, lighting, communications and productive uses (with special reference to *Sustainable Development Goal 7*) (AGECC, 2010).

semanticClimate annotation

WGIII, WGII

energy balance

The difference between the total incoming and total outgoing energy.

If this balance is positive, warming occurs; if it is negative, cooling occurs. Averaged over the globe and over long time periods, this balance must be zero. Because the *climate system* derives virtually all its energy from the Sun, zero balance implies that, globally, the absorbed *solar radiation*, that is, *incoming solar radiation* minus reflected *solar radiation* at the top of the *atmosphere* and *outgoing longwave radiation* emitted by the *climate system* are equal.

semanticClimate annotation

WGI

energy balance model

An energy balance model is a simplified climate model that is typically used as an emulator of climate to analyse the energy budget of the Earth to compute changes in the *climate*.

In its simplest form, there is no explicit spatial dimension, and the model then provides an estimate of the changes in globally averaged temperature computed from the changes in radiation. This zero-dimensional energy balance model can be extended to a one-dimensional or two-dimensional model if changes to the energy budget with respect to latitude, or both latitude and longitude, are explicitly considered.

semanticClimate annotation

energy budget

The Earth is a physical system with an energy budget that includes all gains of incoming energy and all losses of outgoing energy.

The Earth's energy budget is determined by measuring how much energy comes into the Earth system from the Sun, how much energy is lost to space, and accounting for the remainder on Earth and its *atmosphere*. *Solar radiation* is the dominant source of energy into the Earth system. Incoming solar energy may be scattered and reflected by clouds and *aerosols* or absorbed in the atmosphere. The transmitted radiation is then either absorbed or reflected at the Earth's surface. The average *albedo* of the Earth is about 0.3, which means that 30% of the incident solar energy is reflected into space, while 70% is absorbed by the Earth. Radiant solar or shortwave energy is transformed into sensible heat, latent energy (involving different water states), potential energy, and kinetic energy before being emitted as *infrared radiation*. With the average *surface temperature* of the Earth of about 15°C (288 K), the main outgoing energy flux is in the infrared part of the spectrum.

semanticClimate annotation

From Wikipedia An energy budget is a balance sheet of energy income against expenditure. It is studied in the field of Energetics which deals with the study of energy transfer and transformation from one form to another.

Translations

- HI: ऊर्जा बजट

WGI
of the Earth

energy efficiency

The ratio of output or useful energy or energy services or other useful physical outputs obtained from a system, conversion process, transmission or storage activity to the input of energy (measured as kWh kWh⁻¹, tonnes kWh⁻¹ or any other physical measure of useful output like tonne-km transported).

Energy efficiency is often described by energy intensity.

semanticClimate annotation

Translations

- HI: ऊर्जा रूपान्तरण की दक्षता

WGIII,WGII

energy poverty

The absence of sufficient choice in accessing adequate, affordable, reliable, high quality, safe and environmentally benign energy services to support economic and human development (Reddy, 2000).

References

- Reddy, A.K.N., 2000: "Energy and social issues," in United Nations Development Programme, United Nations Department of Economic and Social Affairs and World Energy Council, World Energy Assessment, UPDP: New York, p. 59

semanticClimate annotation

From Wikipedia Energy poverty is lack of access to modern energy services. It refers to the situation of large numbers of people in developing countries and some people in developed countries whose well-being is negatively affected by very low consumption of energy, use of dirty or polluting fuels, and excessive time spent collecting fuel to meet basic needs.

Translations

- HI: ऊर्जा निर्धनता

WGIII

energy security

The goal of a given country, or the global community as a whole, to maintain an adequate, stable and predictable energy supply.

Measures encompass safeguarding the sufficiency of energy resources to meet national energy demand at competitive and stable prices and the resilience of the energy supply; enabling development and deployment of technologies; building sufficient infrastructure to generate, store and transmit energy supplies and ensuring enforceable contracts of delivery.

semanticClimate annotation

WGIII,WGII

energy services

A benefit or amenity (e.g., mobility, communication, thermal comfort) received as a result of energy or other resources use.

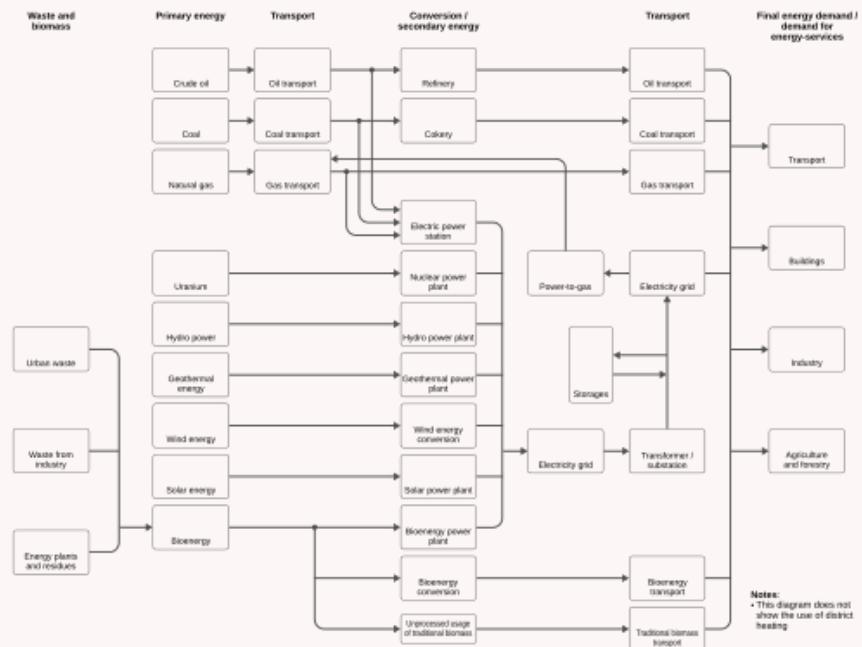
semanticClimate annotation

WGIII

energy system

The energy system comprises all components related to the production, conversion, delivery and use of energy.

semanticClimate annotation



From Wikipedia An energy system is a system primarily designed to supply energy-services to end-users.

WGII

enhanced weathering

A proposed method to increase the natural rate of removal of carbon dioxide (CO₂) from the atmosphere using silicate and carbonate rocks.

The active surface area of these minerals is increased by grinding, before they are actively added to soil, beaches or the open ocean.

semanticClimate annotation



From Wikipedia Enhanced weathering, also termed ocean alkalinity enhancement when proposed for carbon credit systems, is a process that aims to accelerate the natural weathering by spreading finely ground silicate rock, such as basalt, onto surfaces which speeds up chemical reactions between rocks, water, and air.

WGIII,WGI

ensemble

A collection of comparable datasets that reflect variations within the bounds of one or more sources of uncertainty, and that when averaged can provide a more robust estimate of underlying behaviour.

Ensemble techniques are used by the observational, *reanalysis* and modelling communities.

semanticClimate annotation

WGI,WGIII

enteric fermentation

A natural part of the digestion process in ruminant animal species (domesticated and wild), such as cattle, buffalo, sheep, goats, antelope, etc.

Microorganisms (bacteria, archaea, fungi, protozoa and viruses) present in the fore-stomach (reticulorumen or rumen) breakdown plant biomass to produce substrates that can be used by the animal for energy and growth with methane produced as a by-product. Fermentation end-products such as hydrogen, carbon dioxide, formate and methyl-containing compounds are important substrates for the production of methane by the rumen's methane-forming archaea (known as methanogens).

semanticClimate annotation



From Wikipedia Enteric fermentation is a digestive process by which carbohydrates are broken down by microorganisms into simple molecules for absorption into the bloodstream of an animal.
Translations

- HI: आंत्रिक किण्वन

WGIII

equity

A principle that ascribes equal worth to all human beings, including equal opportunities, rights and obligations, irrespective of origins.

Sub-terms

- Inequality

semanticClimate annotation

Translations

- HI: समत्व

WGIII, WGII

equilibrium and transient climate experiment

An equilibrium climate experiment is a *climate model* experiment in which the model is allowed to fully adjust to a change in *radiative forcing*.

Such experiments provide information on the difference between the initial and final states of the model, but not on the time-dependent response. If the forcing is allowed to evolve gradually according to a prescribed *emissions scenario*, the time-dependent response of a climate model may be analysed. Such an experiment is called a transient climate experiment.

semanticClimate annotation

WGI

equilibrium climate sensitivity

The equilibrium (steady state) change in the surface temperature following a doubling of the atmospheric *carbon dioxide (CO₂)* concentration from *pre-industrial* conditions.

Parent-term

- Climate sensitivity

semanticClimate annotation

WGI

ECS

equilibrium line

The spatially averaged boundary at a given moment, usually chosen as the seasonal *mass budget* minimum at the end of summer, between the region on a *glacier* where there is a net annual loss of ice mass (ablation area) and that where there is a net annual gain (*accumulation* area).

The altitude of this boundary is referred to as *equilibrium line* altitude (ELA).

semanticClimate annotation

Translations

- HI: संतुलन रेखा

WGI

equity

The principle of being fair and impartial, and a basis for understanding how the *impacts* and responses to *climate change*, including costs and benefits, are distributed in and by society in more or less equal ways.

Often aligned with ideas of *equality*, *fairness* and *justice* and applied with respect to equity in the responsibility for, and distribution of, *climate* impacts and policies across society, generations and gender, and in the sense of who participates and controls the processes of decision-making.

Sub-terms

- Distributive equity
- Gender equity
- Inter-generational equity

semanticClimate annotation

WGII,WGIII

equivalent carbon dioxide emission

The amount of carbon dioxide (CO₂) emission that would have an equivalent effect on a specified key measure of climate change, over a specified time horizon, as an emitted amount of another greenhouse gas (GHG) or a mixture of other GHGs.

For a mix of GHGs it is obtained by summing the CO₂-equivalent emissions of each gas. There are various ways and time horizons to compute such equivalent emissions (see greenhouse gas emission metric). CO₂-equivalent emissions are commonly used to compare emissions of different GHGs, but should not be taken to imply that these emissions have an equivalent effect across all key measures of climate change.

[Note: Under the Paris Rulebook (Decision 18/CMA.1, annex, paragraph 37), parties have agreed to use GWP-100 values from the IPCC AR5 or GWP-100 values from a subsequent IPCC Assessment Report to report aggregate emissions and removals of GHGs. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.]

semanticClimate annotation

WGI
CO2

ethics

Ethics involves questions of justice and value.

Justice is concerned with right and wrong, equity and fairness, and, in general, with the rights to which people and living beings are entitled. Value is a matter of worth, benefit or good.

semanticClimate annotation

From Wikipedia Ethics or moral philosophy is a branch of philosophy that "involves systematizing, defending, and recommending concepts of right and wrong behavior".
Translations

- HI: नीति

WGII

eudaimonic

Relational well-being concept based on the premise that experiencing life purpose, challenges and growth leads to flourishing, self-realisation, personal expression, and full functioning (Niemiec 2014; Lamb and Steinberger 2017).

Parent-term

- Well-being

semanticClimate annotation

WGIII

eutrophication

Over-enrichment of water by nutrients such as nitrogen and phosphorus.

It is one of the leading causes of water quality impairment. The two most acute symptoms of eutrophication are *hypoxia* (or oxygen depletion) and harmful algal blooms.

semanticClimate annotation



From Wikipedia Eutrophication is the process by which an entire body of water, or parts of it, becomes progressively enriched with minerals and nutrients, particularly nitrogen and phosphorus.

Translations

- HI: ଶୁଷ୍ପୋଷଣ

WGI, WGII

evaporation

The physical process by which a liquid (e.g., water) becomes a gas (e.g., water vapour).

semanticClimate annotation



From Wikipedia Evaporation is a type of vaporization that occurs on the surface of a liquid as it changes into the gas phase.
Translations

- HI: वाष्ण

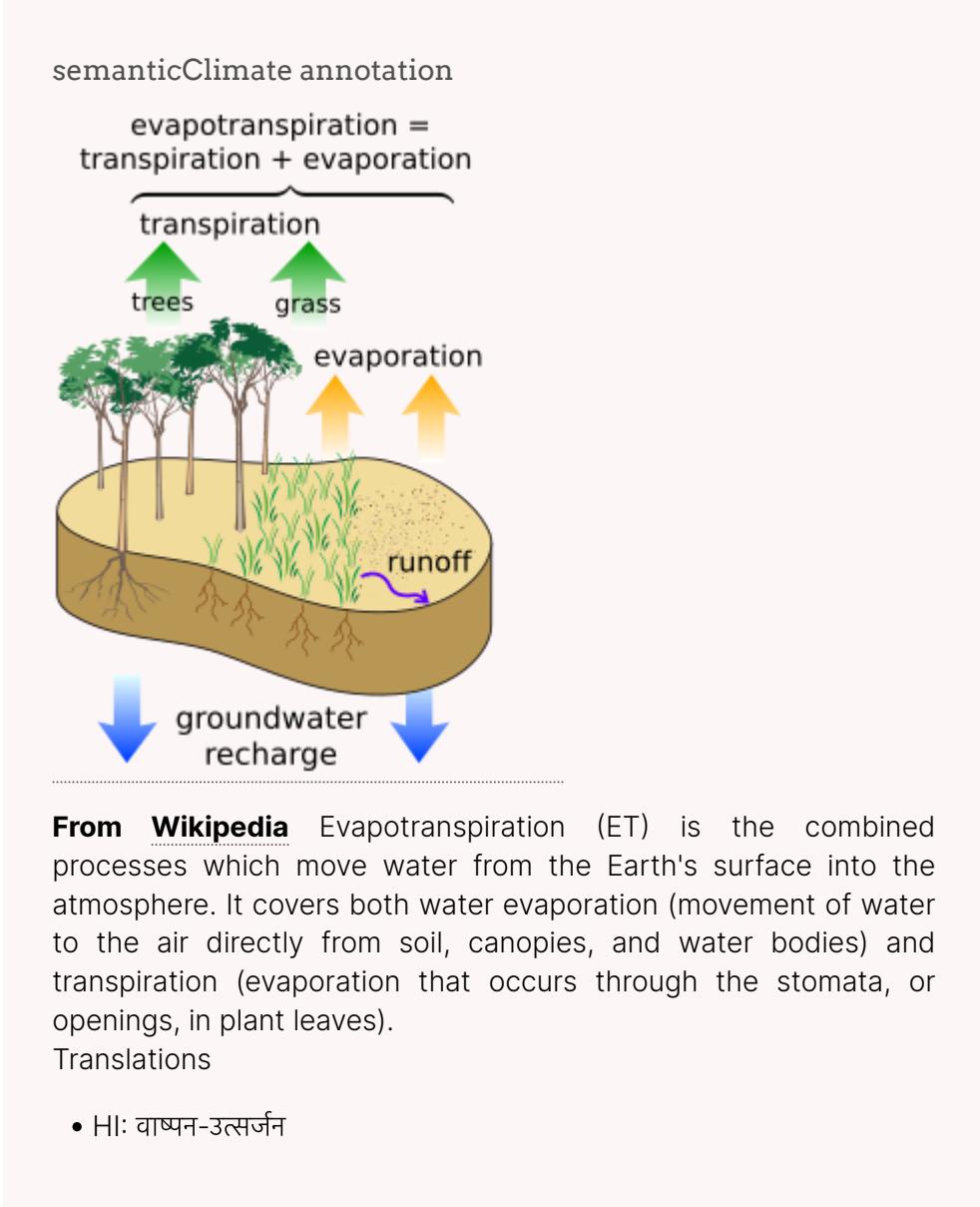
WGII,WGI

evapotranspiration

The combined processes through which water is transferred to the *atmosphere* from open water and ice surfaces, bare soil and vegetation that make up the Earth's surface.

Sub-terms

- Potential evapotranspiration

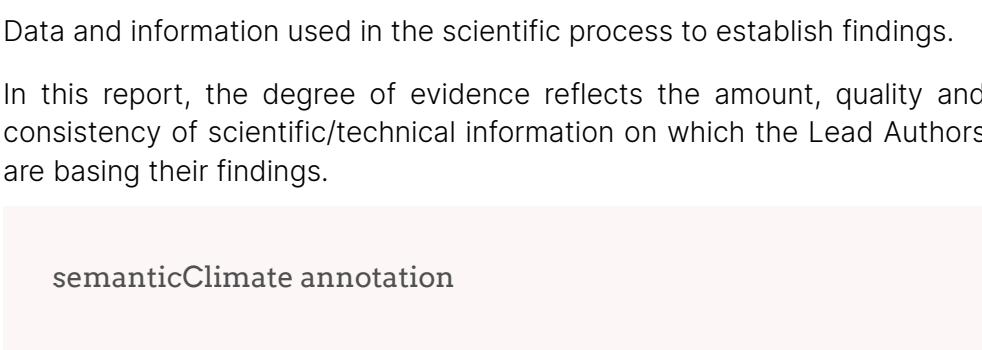


WGI,WGII

evidence

Data and information used in the scientific process to establish findings.

In this report, the degree of evidence reflects the amount, quality and consistency of scientific/technical information on which the Lead Authors are basing their findings.



WGIII,WGII,WGI

evolutionary adaptation

The process whereby a species or population becomes better able to live in a changing environment through the selection of heritable traits.

Biologists usually distinguish evolutionary adaptation from acclimatisation, with the latter occurring within an organism's lifetime.

Parent-term

- Adaptation

semanticClimate annotation

WGII

exergy

Capacity of energy flows to perform useful work.

Exergy is a quality (versatility) indicator of energy flows which ranges from low (e.g., low-temperature heat, biomass) to high (e.g., electricity). Exergy efficiency describes how much useful work can be performed by a particular energy flow in relation to the thermodynamic maximum possible. It can be determined for all energy flows and energy conversion steps, also including alternative service delivery systems. (Grubler et al., 2012).

References

- Grubler, A., T. B. Johansson, L. Mundaca, N. Nakicenovic, S. Pachauri, K. Riahi, H.-H. Rogner, and L. Strupeit, 2012: Chapter 1 - Energy Primer. Global Energy Assessment - Toward a Sustainable Future, 99–150.

semanticClimate annotation

From Wikipedia Exergy, often referred to as "available energy" or "useful work potential," is a fundamental concept in the field of thermodynamics and engineering. It plays a crucial role in understanding and quantifying the quality of energy within a system and its potential to perform useful work.

Translations

- HI: ઉપલબ્ધ ઊર્જા

WGIII

exposure

The presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and settings that could be adversely affected.

semanticClimate annotation

WGI,WGIII,WGII

extended concentration pathways

Extended concentration pathways describe extensions of the RCPs from 2100 to 2300 that were calculated using simple rules generated by stakeholder consultations, and do not represent fully consistent scenarios.

semanticClimate annotation

WGI
ECPs

external forcing

External forcing refers to a *forcing* agent outside the *climate system* causing a change in the climate system.

Volcanic eruptions, solar variations and changes in Earth's orbit, as well as *anthropogenic* changes in the composition of the *atmosphere* or in *land use* are external forcings.

semanticClimate annotation

WGI

externality/external cost/external benefit

Externalities arise from a human activity, when agents responsible for the activity do not take full account of the activity's impact on others' production and consumption possibilities, and no compensation exists for such impacts.

When the impact is negative, they are external costs. When positive they are referred to as external benefits.

semanticClimate annotation

WGII

extinction

A population, species or more inclusive taxonomic group has gone extinct when all its individuals have died.

A species may go extinct locally (population extinction), regionally (e.g., extinction of all populations in a country, continent or ocean) or globally (IPBES, 2019).

semanticClimate annotation



From Wikipedia Extinction is the termination of a taxon by the death of its last member. A taxon may become functionally extinct before the death of its last member if it loses the capacity to reproduce and recover.

Translations

- HI: विलुप्ति

WGII

extirpation

The disappearance of a species from an area, sometimes also referred to as *local extinction*.

Its use implies that the species still occurs elsewhere.

semanticClimate annotation

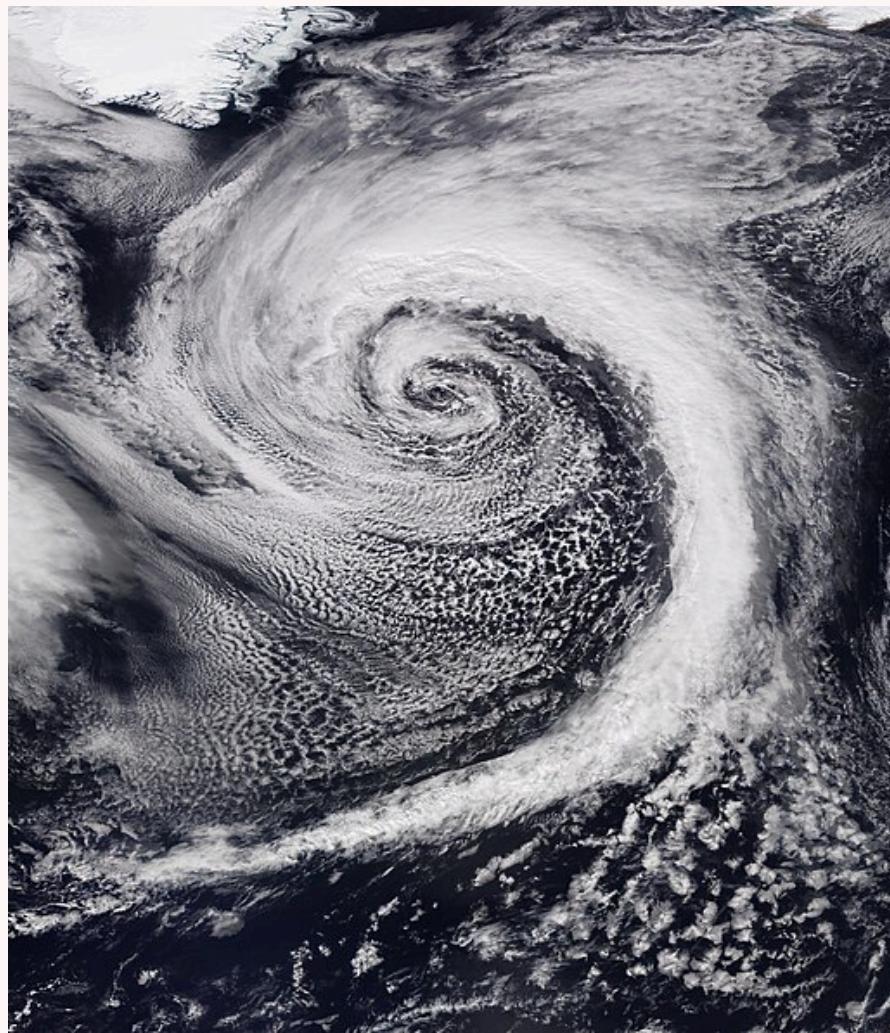
WGII

extratropical cyclone

Any cyclonic-scale storm that is not a *tropical cyclone*.

Usually refers to a mid- or high-latitude migratory storm system formed in regions of large horizontal temperature variations. Sometimes called extratropical storm or extratropical low.

semanticClimate annotation



From Wikipedia Extratropical cyclones, sometimes called mid-latitude cyclones or wave cyclones, are low-pressure areas which, along with the anticyclones of high-pressure areas, drive the weather over much of the Earth.

Translations

- HI: अतिरिक्त उष्णकटिबंधीय चक्रवात

WGI
ETC

extratropical jets

Extratropical jets are wind maxima in the upper *troposphere* marking zones of baroclinic instability.

Anomalies in the position of these jets are often associated with storms, *blocking*, and weather extremes.

semanticClimate annotation

WGI

extreme climate event

The occurrence of a value of a weather or climate variable above (or below) a threshold value near the upper (or lower) ends of the range of observed values of the variable.

By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense. When a pattern of extreme weather persists for some time, such as a season, it may be classified as an extreme climate event, especially if it yields an average or total that is itself extreme (e.g., high temperature, drought or heavy rainfall over a season). For simplicity, both extreme weather events and extreme climate events are referred to collectively as climate extremes.

Parent-term

- Climate extreme (extreme weather or climate event)

semanticClimate annotation

WGI

extreme/heavy precipitation event

An extreme/heavy precipitation event is an event that is of very high magnitude with a very rare occurrence at a particular place.

Types of extreme precipitation may vary depending on its duration, hourly, daily or multi-days (e.g., 5 days), though all of them qualitatively represent high magnitude. The intensity of such events may be defined with a block maxima approach such as annual maxima or with peaks over threshold approach, such as rainfall above the 95th or 99th percentile at a particular place.

semanticClimate annotation

WGI,WGII

extreme sea level

The occurrence of an exceptionally low or high local sea-surface height, arising from (a combination of) short term phenomena (e.g., *storm surges*, tides and waves).

Relative *sea level changes* affect *extreme sea levels* directly by shifting the mean water levels and indirectly by modulating the propagation of tides, waves and/or surges due to increased water depth. In addition, *extreme sea levels* can be influenced by changes in the frequency, tracks or strength of weather systems and storms, or due to anthropogenically induced changes such as the modification of coastlines or dredging. In turn, changes in any or all of the contributions to extreme sea levels may lead to long term relative sea-level changes. Alternate expressions for ESL may be used depending on the processes resolved.

Extreme still water level (ESWL) refers to the combined contribution of relative sea level change, tides and storm surges. Wind-waves also contribute to coastal sea level via three processes: infragravity waves (lower frequency gravity waves generated by wind waves), wave setup (time-mean sea-level elevation due to wave energy dissipation) and swash (vertical displacement up the shore-face induced by individual waves). Extreme total water level (ETWL) is the ESWL plus wave setup. When considering coastal impacts, swash is also important, and extreme coastal water level (ECWL) is used.

semanticClimate annotation

WGI,WGII
ESL

extreme weather event

An event that is rare at a particular place and time of year. Definitions of 'rare' vary, but an extreme weather event would normally be as rare as, or rarer than, the 10th or 90th percentile of a probability density function estimated from observations. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense.

semanticClimate annotation

WGIII,WGII,WGI

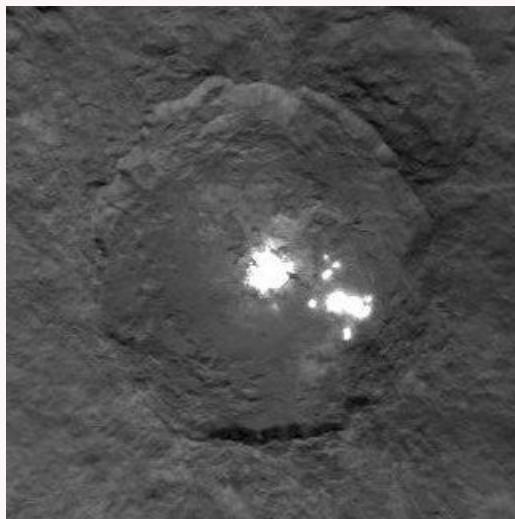
F

faculae

Bright patches on the Sun.

The area covered by faculae is greater during periods of high solar activity.

semanticClimate annotation



From Wikipedia A facula /'fækjʊlə/ (plural: faculae /'fækjʊli:/), Latin for "little torch", is literally a "bright spot". The term has several common technical uses. It is used in planetary nomenclature for naming certain surface features of planets and moons, and is also a type of surface phenomenon on the Sun's photosphere.

Translations

- HI: सूर्य पर चमकीला धब्बा या धारी

WGI

fairness

Impartial and just treatment without favouritism or discrimination in which each person is considered of equal worth with equal opportunity.

semanticClimate annotation

WGIII,WGII

feasibility

In this report, feasibility refers to the potential for a mitigation or adaptation option to be implemented.

Factors influencing feasibility are context-dependent, temporally dynamic and may vary between different groups and actors. Feasibility depends on geophysical, environmental-ecological, technological, economic, socio-cultural and institutional factors that enable or constrain the implementation of an option. The feasibility of options may change when different options are combined, and increase when enabling conditions are strengthened.

semanticClimate annotation

WGIII,WGII

final energy

The energy delivered to final users (firms, individuals, institutions), where it becomes usable energy in supplying energy services (e.g., light, heat, mobility).

semanticClimate annotation

WGIII

fine-mode aerosol optical depth

Aerosol optical depth due to aerosol particles smaller than 1 µm in radius.

Parent-term

- Aerosol optical depth (AOD)

semanticClimate annotation

WGI

fingerprint

The *climate* response pattern in space and/or time to a specific *forcing* is commonly referred to as a fingerprint.

The spatial patterns of sea level response to melting of *glaciers* or *ice sheets* (or other changes in surface loading) are also referred to as fingerprints. Fingerprints are used to detect the presence of this response in observations and are typically estimated using forced *climate model* simulations.

semanticClimate annotation

WGI

fire weather

Weather conditions conducive to triggering and sustaining wildfires, usually based on a set of indicators and combinations of indicators including temperature, soil moisture, humidity, and wind.

Fire weather does not include the presence or absence of fuel load.

semanticClimate annotation

WGI, WGII

firn

Snow that has survived at least one *ablation* season but has not been transformed to *glacier* ice.

Its pore space is at least partially interconnected, allowing air and water to circulate. Firn densities typically are 400–830 kg m⁻³.

semanticClimate annotation



From Wikipedia Firn (/fiərn/; from Swiss German *firn* "last year's", cognate with *before*) is partially compacted névé, a type of snow that has been left over from past seasons and has been recrystallized into a substance denser than névé. It is ice that is at an intermediate stage between snow and glacial ice.

WGI

fitness-for-purpose

The suitability of a model (or other resource, such as a dataset or method) for a particular task, such as quantifying the contribution of increased greenhouse gas concentrations to recent changes in *global mean surface temperature* or projecting changes in *drought* frequency in a region under a given *scenario*.

Assessment of a model's fitness-for-purpose can be informed both by how the model represents relevant physical processes and by how it scores on relevant performance metrics.

semanticClimate annotation

WGI

flaring

Open air burning of waste gases and volatile liquids, through a chimney, at oil wells or rigs, in refineries or chemical plants, and at landfills.

semanticClimate annotation

WGI

flexibility

Adjustment of energy load characteristics by technical and/or non-technical change to balance energy demand and supply.

semanticClimate annotation

WGIII
demand and supply

flexible governance

Strategies of governance at various levels, which prioritise the use of social learning and rapid feedback mechanisms in planning and policymaking, often through incremental, experimental and iterative management processes.

Parent-term

- Governance

semanticClimate annotation

WGIII

flood

The overflowing of the normal confines of a stream or other water body, or the accumulation of water over areas that are not normally submerged.

Floods can be caused by unusually heavy rain, for example, during storms and cyclones. Floods include river (fluvial) floods, flash floods, urban floods, rain (pluvial) floods, sewer floods, coastal floods, and glacial lake outburst floods (GLOFs).

semanticClimate annotation



From Wikipedia A flood is an overflow of water (or rarely other fluids) that submerges land that is usually dry.

Translations

- HI: बाढ़

WGIII,WGII,WGI

flux

A movement (a flow) of matter (e.g., water vapour, particles), heat or energy from one place to another, or from one medium (e.g., land surface) to another (e.g., atmosphere).

semanticClimate annotation

From Wikipedia

Translations

- HI: अभिवाह

WGII,WGI

food-borne diseases

Illnesses transmitted through the consumption of unsafe or contaminated food.

That contamination can come from a variety of sources, including contaminated water (adapted from UNEP, 2018).

semanticClimate annotation

Translations

- HI: खाद्य जनित रोग

WGII

food loss and waste

'The decrease in quantity or quality of food'.

Food waste is part of food loss and refers to discarding or alternative (non-food) use of food that is safe and nutritious for human consumption along the entire food supply chain, from primary production to end household consumer level. Food waste is recognised as a distinct part of food loss because the drivers that generate it and the solutions to it are different from those of food losses (FAO, 2015).

semanticClimate annotation

Translations

- HI: भोजन की हानि और बर्बादी

WGIII

food security

A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

The four pillars of food security are: access; availability; stability; and utilisation. The nutritional dimension is integral to the concept of food security (FAO, 2009,2018).

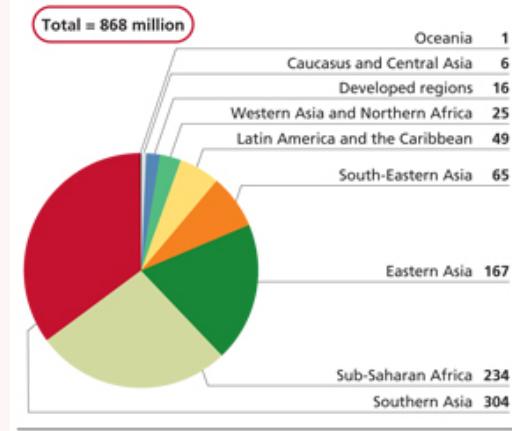
Sub-terms

- Access (to food)

References

- FAO, IFAD, UNICEF, WFP and WHO. 2018. The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition. Rome, FAO.

semanticClimate annotation



From Wikipedia Food security is the availability of food in a country (or a geographic region) and the ability of individuals within that country (region) to access, afford, and source adequate foodstuff.

Translations

- HI: ખાદ્ય સુરક્ષા

WGIII,WGII

food system

All the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes (HLPE, 2017).

[Note: Whilst there is a global food system (encompassing the totality of global production and consumption), each location's food system is unique, being defined by that place's mix of food produced locally, nationally, regionally or globally.]

semanticClimate annotation

From Wikipedia The term food system describes the interconnected systems and processes that influence nutrition, food, health, community development, and agriculture.

Translations

- HI: खाद्य प्रणाली

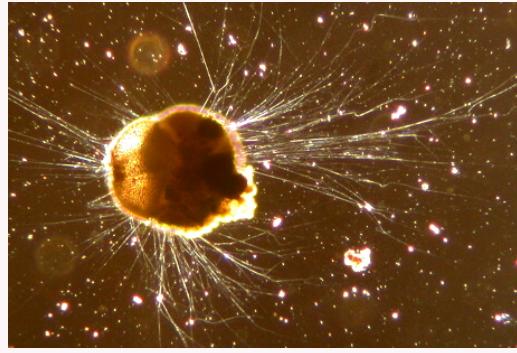
WGIII,WGII

foraminifera

Single-celled, sand-sized marine organisms (protists) that possess a hard test mainly composed of agglutinated walls (detrital grains glued together with organic cement) or calcium carbonate (predominantly calcite).

They are used to reconstruct a range of (paleo)environmental variables such as salinity, temperature, oxygenation, oxygen isotope composition and organic and nutrient flux.

semanticClimate annotation



From Wikipedia Foraminifera (/fəræmɪ'nɪfərə/ fə-RAM-ə-NIH-fə-rə; Latin for "hole bearers"; informally called "forams") are single-celled organisms, members of a phylum or class of amoeboid protists characterized by streaming granular ectoplasm for catching food and other uses; and commonly an external shell (called a "test") of diverse forms and materials.

WGI

forcing

Radiative forcing is the change in the net, downward minus upward, radiative flux (expressed in W m⁻²) at the tropopause or top of

atmosphere due to a change in a driver of climate change, such as a change in the concentration of carbon dioxide or the output of the Sun.

The traditional radiative forcing is computed with all tropospheric properties held fixed at their unperturbed values, and after allowing for stratospheric temperatures, if perturbed, to readjust to radiative-dynamical equilibrium. Radiative forcing is called instantaneous if no change in stratospheric temperature is accounted for. The radiative forcing once rapid adjustments are accounted for is termed the effective radiative forcing. Radiative forcing is not to be confused with cloud radiative forcing, which describes an unrelated measure of the impact of clouds on the radiative flux at the top of the atmosphere.

semanticClimate annotation

WGI

forest

A vegetation type dominated by trees.

Many definitions of the term forest are in use throughout the world, reflecting wide differences in biogeophysical conditions, social structure and economics. [Note: For a discussion of the term forest in the context of National GHG inventories, see the 2006 IPCC Guidelines for National GHG Inventories and their 2019 Refinement, and information provided by the United Nations Framework Convention on Climate Change (IPCC 2006, 2019; UNFCCC, 2021a, b).]

References

- UNFCCC, 2021: Reporting and Review under the Paris Agreement. United Nations Framework Convention on Climate Change (UNFCCC), Bonn, Germany. Retrieved from: <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-paris-agreement>
- UNFCCC, 2021: Reporting and accounting of LULUCF activities under the Kyoto Protocol. United Nations Framework Convention on Climate Change (UNFCCC), Bonn, Germany. Retrieved from: <https://unfccc.int/topics/land-use/workstreams/land-use-land-use-change-and-forestry-lulucf/reporting-and-accounting-of-lulucf-activities-under-the-kyoto-protocol>

semanticClimate annotation



From Wikipedia A forest is an area of land dominated by trees. Hundreds of definitions of forest are used throughout the world, incorporating factors such as tree density, tree height, land use, legal standing, and ecological function.

Translations

- HI: वन

WGI,WGIII,WGII

forest degradation

A reduction in the capacity of a forest to produce ecosystem services such as carbon storage and wood products as a result of anthropogenic and environmental changes.

semanticClimate annotation



From Wikipedia Forest degradation is a process in which the biological wealth of a forest area is permanently diminished by some factor or by a combination of factors. "This does not involve a reduction of the forest area, but rather a quality decrease in its condition.

Translations

- HI: वन क्षरण

WGII

forest line

The upper limit of the closed upper montane forest or forest at high latitudes.

It is less elevated or less poleward than the tree line.

semanticClimate annotation

WGII

fossil fuel emissions

Emissions of greenhouse gases (GHGs) (in particular ~~2)carbon dioxide (CO)~~, other trace gases and aerosols resulting from the combustion of fuels from fossil carbon deposits such as oil, gas and coal.

semanticClimate annotation

WGI

fossil fuels

Carbon-based fuels from fossil hydrocarbon deposits, including coal, oil and natural gas.

semanticClimate annotation



From Wikipedia A fossil fuel is a hydrocarbon-containing material such as coal, oil, and natural gas, formed naturally in the Earth's crust from the remains of dead plants and animals that is extracted and burned as a fuel.

Translations

- HI: जीवाश्म ईंधन

WGIII,WGII,WGI

free atmosphere

The atmospheric layer that is negligibly affected by friction against the Earth's surface, and which is above the *atmospheric boundary layer*.

semanticClimate annotation

WGI

frozen ground

Soil or rock in which part or all of the pore water consists of ice.

semanticClimate annotation

WGI

fuel poverty

A condition in which a household is unable to guarantee a certain level of consumption of domestic energy services (especially heating) or suffers disproportionate expenditure burdens to meet these needs.

semanticClimate annotation

WGIII

fugitive emissions

The release of greenhouse gases that occur during the exploration, processing and delivery of fossil fuels to the point of final use.

This excludes greenhouse gas emissions from fuel combustion for the production of useful heat or power. It encompasses venting, flaring, and leaks.

semanticClimate annotation

WGIII

oil and natural gas systems

G

gender equity

Equity between women and men with regard to their rights, resources and opportunities.

In the case of climate change, gender equity recognises that women are often more vulnerable to the impacts of climate change and may be disadvantaged in the process and outcomes of climate policy.

Parent-term

- Equity

semanticClimate annotation

WGIII

general circulation

The large-scale motions of the *atmosphere* and the ocean as a consequence of differential heating on a rotating Earth.

General circulation contributes to the *energy balance* of the system through transport of heat and momentum.

semanticClimate annotation

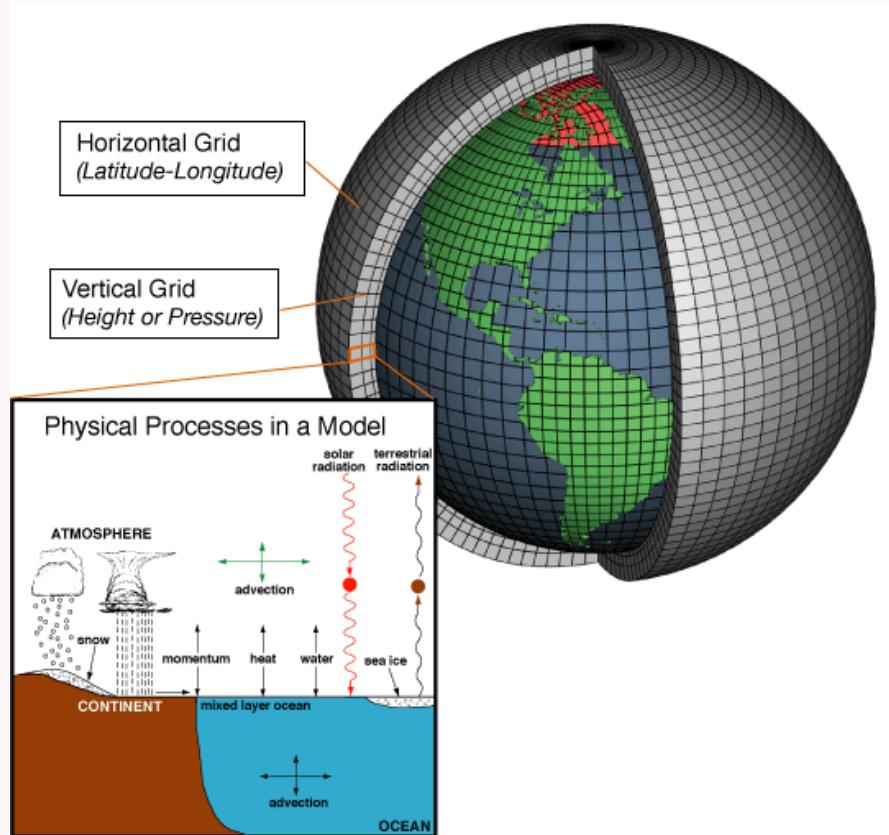
WGI

general circulation model

A numerical representation of the atmosphere–ocean–sea ice system based on the physical, chemical and biological properties of its components, their interactions and feedback processes.

General circulation models are used for weather forecasts, seasonal to decadal prediction, and *climate projections*. They are the basis of the more complex *Earth system models (ESMs)*.

semanticClimate annotation



From Wikipedia A general circulation model (GCM) is a type of climate model. It employs a mathematical model of the general circulation of a planetary atmosphere or ocean.

Translations

- HI: सामान्य परिसंचरण मॉडल

WGI
GCM

geocentric sea level change

The change in local mean sea surface height with respect to the terrestrial reference frame; it is the sea level change observed with instruments from space.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

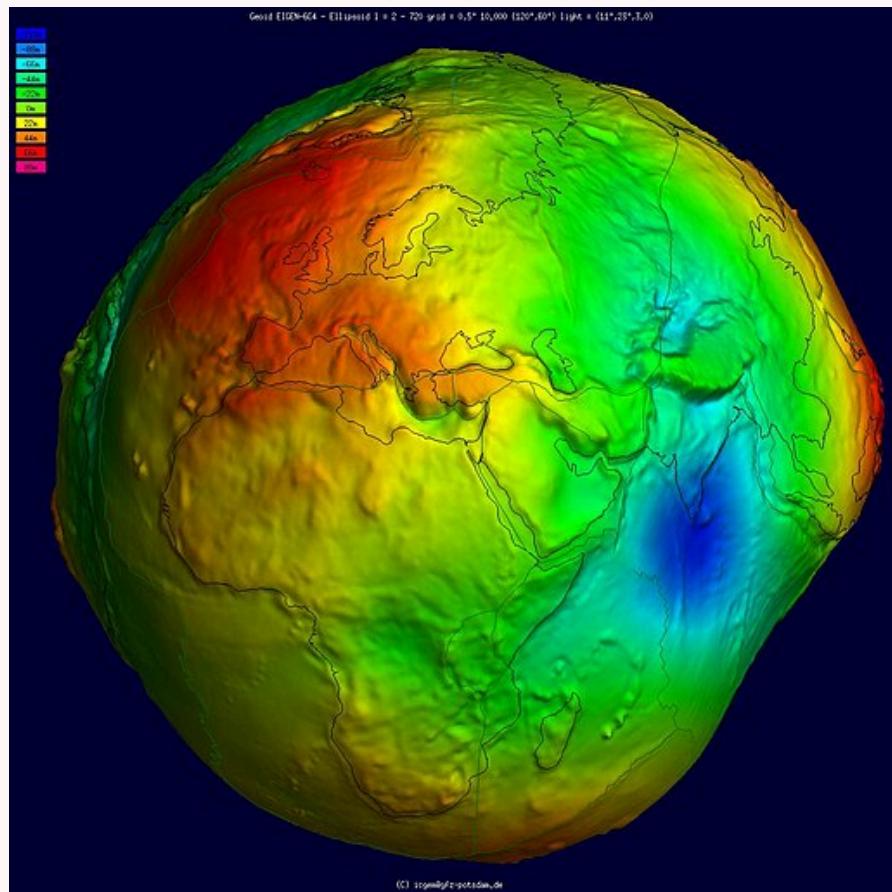
WGI

geoid

The equipotential surface having the same geopotential at each latitude and longitude around the world (geodesists denote this potential W_0) that best approximates the *mean sea level*.

It is the surface of reference for measurement of altitude. In practice, several variations of definitions of the *geoid* exist depending on the way the permanent tide (the zero-frequency gravitational tide due to the Sun and Moon) is considered in geodetic studies.

semanticClimate annotation



From Wikipedia The geoid (/dʒiːɔɪd/) is the shape that the ocean surface would take under the influence of the gravity of Earth, including gravitational attraction and Earth's rotation, if other influences such as winds and tides were absent.

WGI

geostrophic winds or currents

A wind or current that is in balance with the horizontal pressure gradient and the Coriolis force, and thus is outside of the influence of friction.

Thus, the wind or current is directly parallel to isobars and its speed is proportional to the horizontal pressure gradient.

semanticClimate annotation

WGI

geothermal energy

Accessible thermal energy stored in the Earth's interior, in both rock and trapped steam or liquid water (hydrothermal resources), which may be used to generate electric energy in a thermal power plant, or to supply heat to any process requiring it.

The main sources of geothermal energy are the residual energy available from planet formation and the energy continuously generated from radionuclide decay.

semanticClimate annotation



From Wikipedia Geothermal energy is thermal energy in the Earth's crust. It combines energy from the formation of the planet and from radioactive decay.

Translations

- HI: મૂલ્ય-તાપીય ઊર્જા

WGIII

gini coefficient

A statistical measure of dispersion in a distribution and degree of mathematical measure of inequality.

For example, it can be used for measuring inequality in income, wealth, carbon emissions, and access to well-being defining services. The dimensionless GINI coefficient ranges between 0 (absolute equality) and 1 (absolute inequality).

semanticClimate annotation

From Wikipedia In economics, the Gini coefficient (/dʒiːni/ JEE-nee), also known as the Gini index or Gini ratio, is a measure of statistical dispersion intended to represent the income inequality, the wealth inequality, or the consumption inequality within a nation or a social group. It was developed by Italian statistician and sociologist Corrado Gini.

Translations

- HI: ગિની ગુણાંક

WGIII

glacial-interglacial cycles

Phase of the Earth's history marked by large changes in continental ice volume and global sea level.

semanticClimate annotation

WGI

glacial isostatic adjustment

The ongoing changes in *gravity, rotation and viscoelastic solid Earth deformation (GRD)* in response to past changes in the distribution of ice and water on Earth's surface.

On a time scale of decades to tens of millennia following mass redistribution, Earth's mantle flows viscously as it evolves toward isostatic

equilibrium, causing solid Earth movement and *geoid* changes, which can result in regional-to-local sea level variations.

semanticClimate annotation

WGI
GIA

Glacial lake outburst flood /Glacier lake outburst

A sudden release of water from a glacier lake, including any of the following types: a glacier-dammed lake, a pro-glacial moraine-dammed lake or water that was stored within, under or on the glacier.

semanticClimate annotation



From Wikipedia A glacial lake outburst flood (GLOF) is a type of outburst flood caused by the failure of a dam containing a glacial lake.

WGII,WGI
GLOF

glacial or glaciation

A period characterized by the establishment of expanded ice sheets and glaciers, and associated with global mean sea level (GMSL) substantially lower than present; generally coincides with even-numbered *marine isotope stages*.

Glacial intervals were interrupted by interglacial intervals. The Last Glacial Maximum (LGM) is a specific interval within the most recent glaciation, when ice sheets were near their global maximum volume (Clark et al., 2009; Gowan et al., 2021) and GMSL was nearly at its lowest level (Lambeck et al., 2014; Yokoyama et al., 2018). Local or regional glacial maxima may be diachronous, for example ranging from about 29,000 years ago and 16,000 years ago. For purposes of global synthesis, IPCC AR6 adopts a practical chronostratigraphic definition of LGM of 23,000–19,000 years BP (before 1950; chronozone level 1 of Mix et al., 2001). For modelling purposes, LGM is defined by the model time step nearest to the centre of this interval, 21,000 years ago (Kageyama et al., 2017).

semanticClimate annotation

From Wikipedia

Translations

- HI: हिमाच्छादन

WGI

glaciated

State of a surface that was covered by *glacier* ice in the past, but not at present.

semanticClimate annotation

WGI

glacier

A perennial mass of ice, and possibly firn and snow, originating on the land surface by accumulation and compaction of snow and showing evidence of past or present flow.

A glacier typically gains mass by accumulation of snow and loses mass by ablation. Land ice masses of continental size (>50,000 km²) are referred to as ice sheets (Cogley et al., 2011).

Sub-terms

- Outlet glacier

semanticClimate annotation



From Wikipedia A glacier (US: /'gleɪʃər/; UK: /'glæsiər, 'gleɪsiər/) is a persistent body of dense ice that is constantly moving under its own weight. A glacier forms where the accumulation of snow exceeds its ablation over many years, often centuries.

Translations

- HI: हिमनद

WGI,WGII

glacierized

A surface that is currently covered by *glacier* ice.

semanticClimate annotation

WGI

Global Environment Facility

The Global Environment Facility, established in 1991, helps developing countries fund projects and programmes that protect the global environment.

GEF grants support projects related to biodiversity, climate change, international waters, land degradation, the ozone (O₃) layer, and persistent organic pollutants.

semanticClimate annotation

From Wikipedia The Global Environment Facility (GEF) is a multilateral environmental fund that provides grants and blended finance for projects related to biodiversity, climate change, international waters, land degradation, persistent organic pollutants (POPs), mercury, sustainable forest management, food security, and sustainable cities in developing countries.

Translations

- HI: वैश्वेक पर्यावरण सुविधा

GEF

global carbon budget

An assessment of carbon cycle sources and sinks on a global level, through the synthesis of evidence for fossil-fuel and cement emissions, landuse change emissions, ocean and land CO₂ sinks, and the resulting atmospheric CO₂ growth rate.

semanticClimate annotation

WGIII,WGI

global change

A generic term to describe global scale changes in systems, including the climate system, ecosystems and social-ecological systems.

semanticClimate annotation

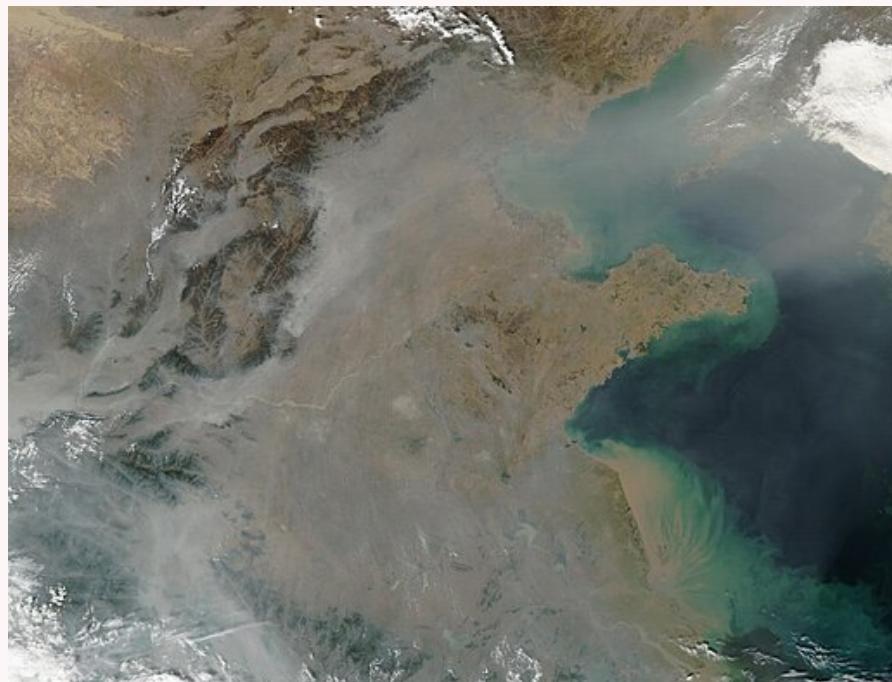
WGII

global dimming

Global dimming refers to the observed widespread reduction in the amount of *solar radiation* received at the Earth's surface from the 1950s to the 1980s, with an increase in anthropogenic aerosol emissions appearing to have contributed.

This was followed by a partial recovery since the 1990s ('brightening'), particularly in industrialized areas, coincident with a reduction in anthropogenic aerosol emissions.

semanticClimate annotation



From Wikipedia The first systematic measurements of global direct irradiance at the Earth's surface began in the 1950s. A decline in irradiance was soon observed, and it was given the name of global dimming.

Translations

- HI: वैश्विक धुँधलापन

WGI

global energy budget

For a given time period, the global energy budget expresses the balance between change in the global energy inventory, the time-integrated effective radiative forcing and time-integrated radiative response of the climate system.

Typical units: Joules.

Parent-term

- Earth's energy budget

semanticClimate annotation

Translations

- HI: वैश्विक ऊर्जा बजट

WGI

global energy inventory

quantifies the excess energy absorbed or lost by the Earth system (ocean, land, atmosphere and cryosphere), mostly in the form of heat, associated with radiative forcing of the climate.

Typical units: Joules.

Parent-term

- Earth's energy budget

semanticClimate annotation

WGI

global mean sea level change

The increase or decrease in the volume of the ocean divided by the ocean surface area.

It is the sum of changes in ocean density through temperature changes (global mean thermosteric sea level change) and changes in the ocean mass as a result of changes in the cryosphere or land water storage (barystatic sea level change).

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGII,WGI
GMSL

global mean surface air temperature

Global average of near-surface air temperatures over land, oceans and sea ice.

Changes in GSAT are often used as a measure of global temperature change in *climate models*.

semanticClimate annotation

WGI,WGIII,WGII
GSAT

global mean surface temperature

Estimated global average of near-surface air temperatures over land and sea ice, and *sea surface temperature (SST)* over ice-free ocean regions, with changes normally expressed as departures from a value over a specified *reference period*.

semanticClimate annotation

WGI,WGIII,WGII
GMST

global monsoon

The global monsoon (GM) is a global-scale solstitial mode that dominates the annual variation of tropical and sub-tropical precipitation and circulation.

The GM domain is defined as the area where the annual range of precipitation (local summer minus winter mean precipitation rate) is greater than 2.5 mm day^{-1} , following on from the definition as in Kitoh et al. (2013). Further details on how the GM is defined, used and related to regional monsoons throughout the Report are provided by WGI AR6 Annex V (IPCC 2021b).

Sub-terms

- Australian and Maritime Continent monsoon (AusMCM)
- East Asian monsoon (EAsiaM)
- North American monsoon (NAmerM)
- South American monsoon (SAmerM)
- South and South East Asian monsoon (SAsiaM)
- West African monsoon (WAfriM)

semanticClimate annotation

WGI, WGII

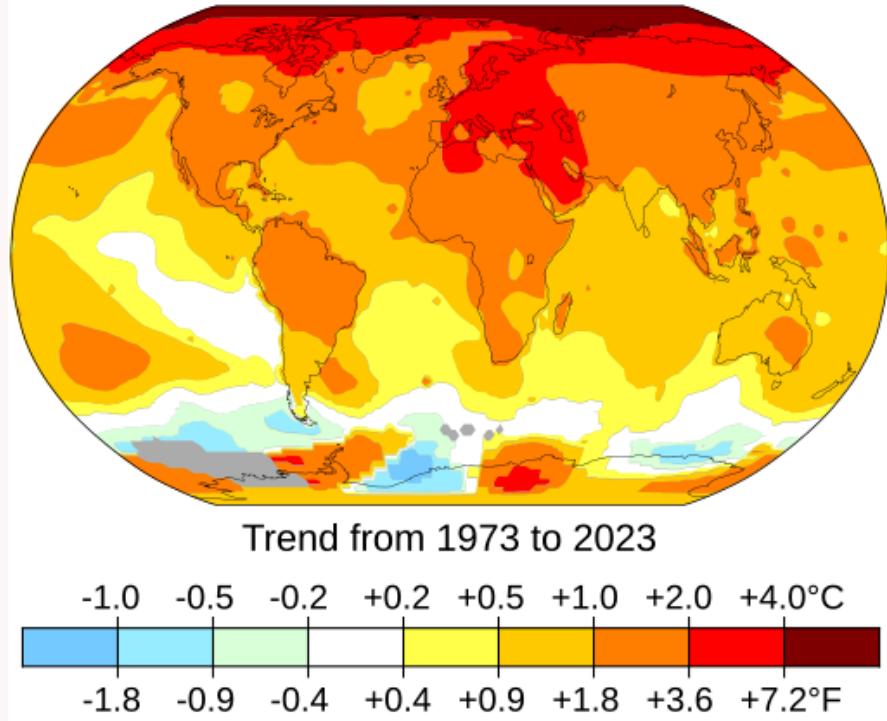
global warming

Global warming refers to the increase in *global surface temperature* relative to a baseline *reference period*, averaging over a period sufficient to remove interannual variations (e.g., 20 or 30 years).

A common choice for the baseline is 1850–1900 (the earliest period of reliable observations with sufficient geographic coverage), with more modern baselines used depending upon the application.

semanticClimate annotation

Temperature change over the past 50 years



From Wikipedia In common usage, climate change describes global warming—the ongoing increase in global average temperature—and its effects on Earth's climate system. Climate change in a broader sense also includes previous long-term changes to Earth's climate.

Translations

- HI: મૂંડલીય ઊષીકરણ

WGIII, WGII, WGI

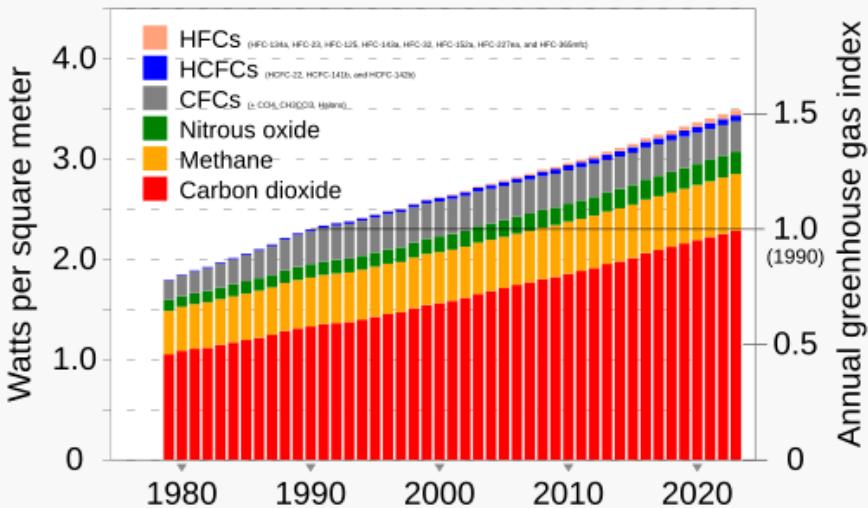
global warming potential

An index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO₂).

The GWP thus represents the combined effect of the differing times these substances remain in the atmosphere and their effectiveness in causing radiative forcing.

semanticClimate annotation

Warming influence of greenhouse gases



From Wikipedia Global warming potential (GWP) is a measure of how much infrared thermal radiation a greenhouse gas added to the atmosphere would absorb over a given time frame, as a multiple of the radiation that would be absorbed by the same mass of added carbon dioxide (CO₂).

Translations

- HI: ग्लोबल वार्मिंग की संभाव्यता

WGI, WGIII
GWP

governance

The structures, processes and actions through which private and public actors interact to address societal goals.

This includes formal and informal institutions and the associated norms, rules, laws and procedures for deciding, managing, implementing and monitoring policies and measures at any geographic or political scale, from global to local.

Sub-terms

- Adaptive governance
- Climate governance
- Deliberative governance

- Flexible governance
- Multi-level governance
- Participatory governance
- Polycentric governance

semanticClimate annotation

From Wikipedia

Translations

- HI: अमिशासन

WGIII,WGII

governance capacity

The ability of governance institutions, leaders, and non-state and civil society to plan, coordinate, fund, implement, evaluate and adjust policies and measures over the short, medium and long term, adjusting for uncertainty, rapid change and wide-ranging impacts and multiple actors and demands.

semanticClimate annotation

WGIII,WGII

gravitational, rotational and deformational effects

Changes in Earth gravity, Earth rotation and viscoelastic solid Earth deformation (GRD) result from the redistribution of mass between terrestrial ice and water reservoirs and the ocean.

Contemporary terrestrial mass loss leads to elastic solid Earth uplift and a nearby relative sea level fall (for a single source of terrestrial mass loss this is within ~2000 km, for multiple sources the distance depends on the interaction of the different relative sea level patterns). Farther away (more than ~7000 km for a single source of terrestrial mass loss), relative sea level rises more than the global average, due (to first order) to gravitational effects. Earth deformation associated with adding water to the oceans and a shift of the Earth's rotation axis towards the source of terrestrial mass loss leads to second-order effects that increase spatial variability of the pattern globally. GRD effects due to the redistribution of

ocean water within the ocean itself are referred to as self-attraction and loading effects.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI
GRD

Gravity Recovery and Climate Experiment

A pair of satellites that measured the Earth's gravity field anomalies from 2002 to 2017.

These fields have been used, among other things, to study mass changes of the polar *ice sheets* and *glaciers*.

semanticClimate annotation

WGI
GRACE

grazing land

The sum of rangelands and *pastures* not considered as cropland, and subject to livestock grazing or hay production.

It includes a wide range of *ecosystems*, for example, systems with vegetation that fall below the threshold used in the *forest* land category, silvo-pastoral systems, as well as natural, managed grasslands and semi-deserts.

semanticClimate annotation



From Wikipedia Pasture lands in the narrow sense are enclosed tracts of farmland, grazed by domesticated livestock, such as horses, cattle, sheep, or swine.

Translations

- HI: चरागाह

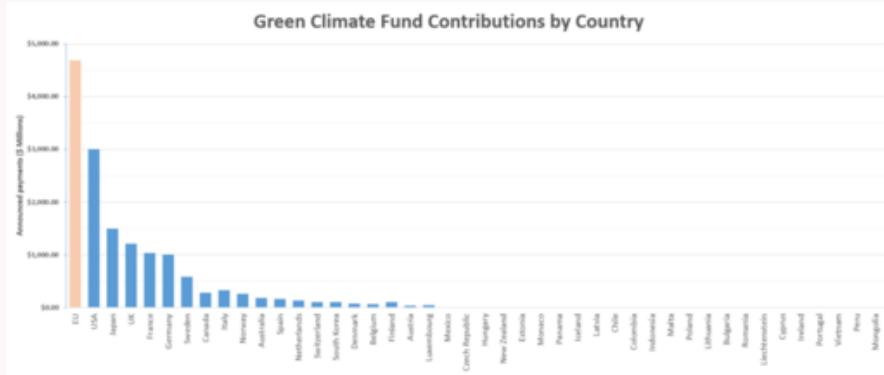
WGIII

Green Climate Fund

The Green Climate Fund was established by the 16th Session of the Conference of the Parties (COP) in 2010 as an operating entity of the financial mechanism of the United Nations Framework Convention on Climate Change (UNFCCC), in accordance with Article 11 of the Convention, to support projects, programmes and policies and other activities in developing country Parties.

The Fund is governed by a board and will receive guidance from the COP.

semanticClimate annotation



From Wikipedia The Green Climate Fund (GCF) is a fund established within the framework of the United Nations Framework Convention on Climate Change as an operating entity of the Financial Mechanism to assist developing countries in adaptation and mitigation practices to counter climate change.

Translations

- HI: हरित जलवायु कोष

WGIII,WGII

GCF

green infrastructure

The strategically planned interconnected set of natural and constructed ecological systems, green spaces and other landscape features that can provide functions and services including air and water purification, temperature management, floodwater management and coastal defence often with co-benefits for human and ecological well-being.

Green infrastructure includes planted and remnant native vegetation, soils, wetlands, parks and green open spaces, as well as building and street-level design interventions that incorporate vegetation (Culwick and Bobbins, 2016).

Parent-term

- Infrastructure

semanticClimate annotation



From Wikipedia Green infrastructure or blue-green infrastructure refers to a network that provides the “ingredients” for solving urban and climatic challenges by building with nature.

Translations

- HI: हरित बुनियादी ढांचा

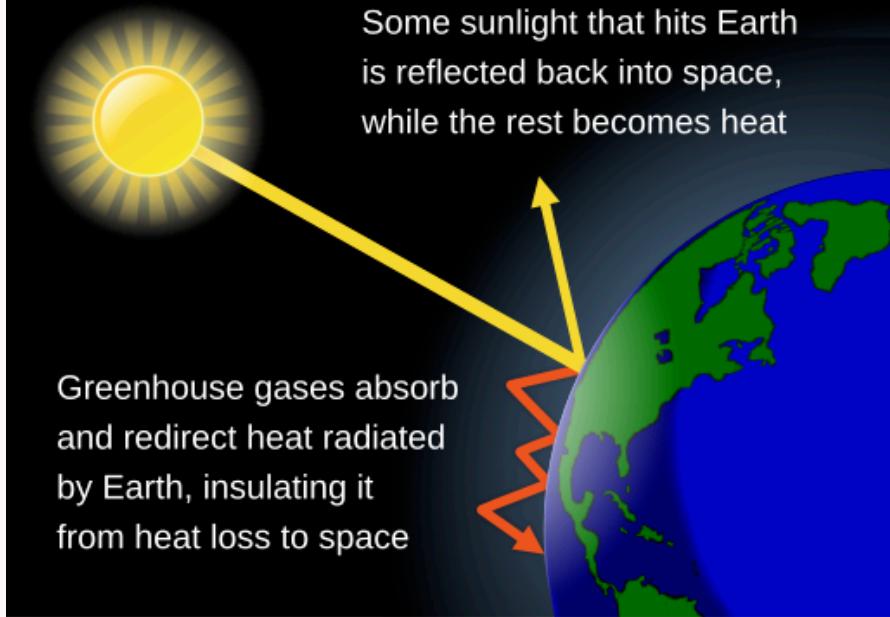
WGIII,WGII

greenhouse effect

The infrared radiative effect of all infrared-absorbing constituents in the *atmosphere*.

Greenhouse gases (GHGs), clouds, and some *aerosols* absorb *terrestrial radiation* emitted by the Earth's surface and elsewhere in the atmosphere. These substances emit infrared radiation in all directions, but, everything else being equal, the net amount emitted to space is normally less than would have been emitted in the absence of these absorbers because of the decline of temperature with altitude in the *troposphere* and the consequent weakening of emission. An increase in the concentration of GHGs increases the magnitude of this effect; the difference is sometimes called the enhanced greenhouse effect. The change in a GHG concentration because of *anthropogenic* emissions contributes to an *instantaneous radiative forcing*. Earth's surface temperature and *troposphere* warm in response to this forcing, gradually restoring the radiative balance at the top of the atmosphere.

The Greenhouse Effect



From Wikipedia The greenhouse effect occurs when greenhouse gases in a planet's atmosphere cause some of the heat radiated from the planet's surface to build up at the planet's surface.

Translations

- HI: ग्रीन हाउस प्रभाव

WGI

greenhouse gas emission metric

A simplified relationship used to quantify the effect of emitting a unit mass of a given *greenhouse gas (GHG)* on a specified key measure of *climate change*.

A relative GHG emission metric expresses the effect from one gas relative to the effect of emitting a unit mass of a reference GHG on the same measure of climate change. There are multiple emission metrics, and the most appropriate metric depends on the application. GHG emission metrics may differ with respect to: (i) the key measure of climate change they consider; (ii) whether they consider climate outcomes for a specified point in time or integrated over a specified time horizon; (iii) the time horizon over which the metric is applied; (iv) whether they apply to a single emission pulse, emissions sustained over a period of time, or a

combination of both; and (v) whether they consider the climate effect from an emission compared to the absence of that emission or compared to a reference emissions level or climate state.

[Note: Most relative GHG emission metrics (such as the *global warming potential (GWP)*, *global temperature change potential (GTP)*, *global damage potential*, and *GWP**), use carbon dioxide (*CO₂*) as the reference gas. Emissions of non-CO₂ gases, when expressed using such metrics, are often referred to as 'carbon dioxide equivalent' emissions. A metric that establishes equivalence regarding one key measure of the *climate system* response to emissions does not imply equivalence regarding other key measures. The choice of a metric, including its time horizon, should reflect the policy objectives for which the metric is applied.]

semanticClimate annotation

WGI,WGIII

greenhouse gas neutrality

Condition in which metric-weighted anthropogenic greenhouse gas (GHG) emissions associated with a subject are balanced by metric-weighted anthropogenic GHG removals.

The subject can be an entity such as a country, an organisation, a district or a commodity, or an activity such as a service or an event. GHG neutrality is often assessed over the lifecycle, including indirect ('scope 3') emissions, but can also be limited to the emissions and removals, over a specified period, for which the subject has direct control, as determined by the relevant scheme. The quantification of GHG emissions and removals depends on the GHG emission metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric

[Note 1: Greenhouse gas neutrality and net zero greenhouse gas emissions are overlapping concepts. The concepts can be applied at global or sub-global scales (e.g., regional, national and sub-national). At a global scale, the terms greenhouse gas neutrality and net zero greenhouse gas emissions are equivalent. At sub-global scales, net zero GHG emissions is generally applied to emissions and removals under direct control or territorial responsibility of the reporting entity, while GHG neutrality generally includes emissions and removals within and beyond the direct control or territorial responsibility of the reporting entity. Accounting rules specified by GHG programmes or schemes can have a significant influence on the quantification of relevant emissions and removals.

Note 2: Under the Paris Rulebook (Decision 18/CMA.1, annex, paragraph 37), parties have agreed to use GWP100 values from the IPCC AR5 or GWP100 values from a subsequent IPCC Assessment Report to report aggregate emissions and removals of GHGs. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.

Note 3: In some cases, achieving greenhouse gas neutrality may rely on the supplementary use of *offsets* to balance emissions that remain after actions by the reporting entity are taken into account.]

semanticClimate annotation

WGI, WGIII

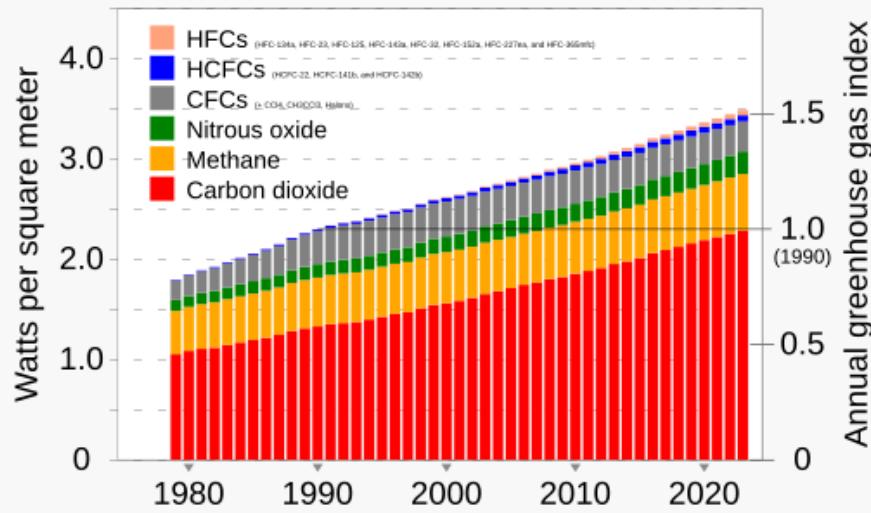
greenhouse gases

Gaseous constituents of the *atmosphere*, both natural and *anthropogenic*, that absorb and emit radiation at specific wavelengths within the spectrum of radiation emitted by the Earth's surface, by the atmosphere itself, and by clouds.

This property causes the *greenhouse effect*. Water vapour (H₂O), 2)*carbon dioxide* (CO, 2)*nitrous oxide* (N₂O), 4)*methane* (CH₄) and 3)*ozone* (O₃) are the primary GHGs in the Earth's atmosphere. Human-made GHGs include 6),*sulphur hexafluoride* (SF₆), *hydrofluorocarbons* (HFCs), *chlorofluorocarbons* (CFCs) and *perfluorocarbons* (PFCs); several of these are also O₃-depleting (and are regulated under the *Montreal Protocol*).

semanticClimate annotation

Warming influence of greenhouse gases



From Wikipedia Greenhouse gases are the gases in the atmosphere that raise the surface temperature of planets such as the Earth. What distinguishes them from other gases is that they absorb the wavelengths of radiation that a planet emits, resulting in the greenhouse effect.

Translations

- HI: ग्रीनहाउस गैस

WGI,WGII,WGIII
GHGs

Greenland Ice Sheet

There are only two ice sheets in the modern world, one on Greenland and one on Antarctica.

The latter is divided into the East Antarctic Ice Sheet (EAIS), the West Antarctic Ice Sheet (WAIS) and the Antarctic Peninsula Ice Sheet. During glacial periods, there were other ice sheets.

semanticClimate annotation



From Wikipedia The Greenland ice sheet (Danish: Grønlands indlandsis, Greenlandic: Sermersuaq) is a vast body of ice covering 1,710,000 square kilometres (660,000 sq mi), roughly near 80% of the surface of Greenland. It is sometimes referred to as an ice cap, or under the term inland ice, or its Danish equivalent, indlandsis.

Translations

- HI: ग्रीनलैण्ड हिमचादर

WGI

GrlS

grey infrastructure

Engineered physical components and networks of pipes, wires, tracks and roads that underpin energy, transport, communications (including digital), built form, water and sanitation and solid waste management systems.

Parent-term

- Infrastructure

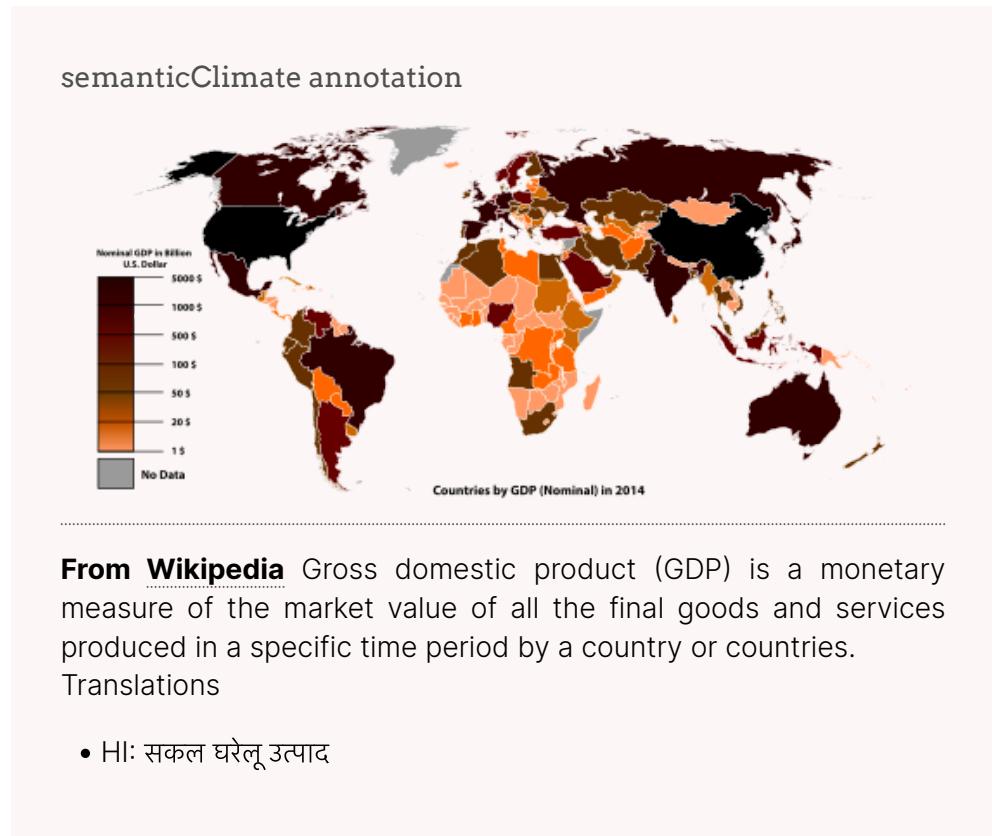
semanticClimate annotation

WGII,WGIII

gross domestic product

The sum of gross value added, at purchasers' prices, by all resident and non-resident producers in the economy, plus any taxes and minus any subsidies not included in the value of the products in a country or a geographic region for a given period, normally one year.

GDP is calculated without deducting for depreciation of fabricated assets or depletion and degradation of natural resources.



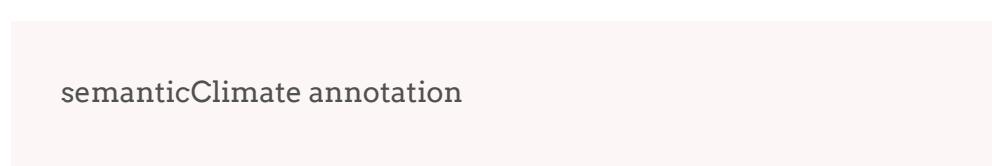
WGIII, WGII
GDP

gross primary production

The total amount of carbon fixed by photosynthesis over a specified time period.

Parent-term

- Primary production



WGI

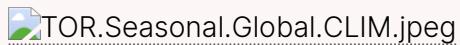
GPP

ground-level ozone

Atmospheric ozone (O_3) is formed naturally or from human-emitted precursors near Earth's surface, thus affecting human health, agriculture and ecosystems.

Ozone is a greenhouse gas (GHG), but ground-level ozone, unlike stratospheric ozone, also directly affects organisms at the surface. Ground-level ozone is sometimes referred to as tropospheric ozone, although much of the troposphere is well above the surface and thus does not directly expose organisms at the surface.

semanticClimate annotation



From Wikipedia Ground-level ozone (O_3), also known as surface-level ozone and tropospheric ozone, is a trace gas in the troposphere (the lowest level of the Earth's atmosphere), with an average concentration of 20–30 parts per billion by volume (ppbv), with close to 100 ppbv in polluted areas.

WGI

grounding line

The junction between a glacier or ice sheet and an ice shelf; the place where ice starts to float.

This junction normally occurs over a zone, rather than at a line.

semanticClimate annotation

WGI

groundwater recharge

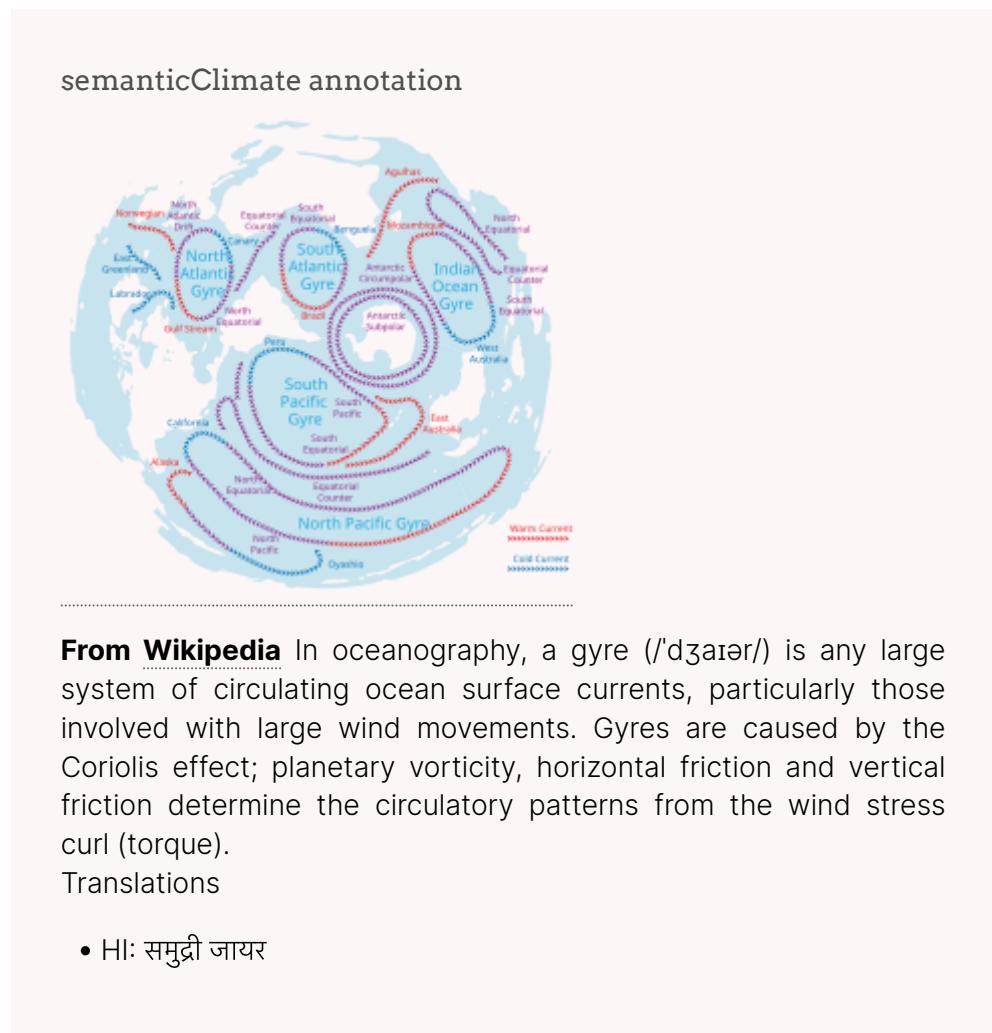
The process by which external water is added to the zone of saturation of an aquifer, either directly into a geologic formation that traps the water or indirectly by way of another formation.

semanticClimate annotation

gyre

Basin-scale ocean horizontal circulation pattern with slow flow circulating around the ocean basin, closed by a strong and narrow (100 to 200 km wide) boundary current on the western side.

The subtropical gyres in each ocean are associated with high pressure in the centre of the gyres; the subpolar gyres are associated with low pressure.



H

habitability

The ability of a place to support human life by providing protection from *hazards* which challenge human survival, and by assuring adequate space, food and freshwater.

semanticClimate annotation

Translations

- HI: आवास की संभावना

WGII
human

hadley circulation

A direct, thermally driven overturning cell in the *atmosphere* consisting of poleward flow in the upper *troposphere*, subsiding air into the subtropical anticyclones, return flow as part of the trade winds near the surface, and with rising air near the equator in the so-called *Inter-tropical Convergence Zone*.

semanticClimate annotation

WGI

halocarbons

A collective term for the group of partially halogenated organic species, which includes the *chlorofluorocarbons* (CFCs), hydrochlorofluorocarbons (HCFCs), *hydrofluorocarbons* (HFCs), halons, methyl chloride and methyl bromide.

Many of the halocarbons have large *global warming potentials*. The chlorine and bromine-containing halocarbons are also involved in the depletion of the ozone layer.

semanticClimate annotation

WGI,WGIII

halocline

A layer in the oceanic water column in which salinity changes rapidly with depth.

Generally, saltier water is denser and lies below less salty water. In some high-latitude *oceans* the surface waters may be colder than the deep waters, and the halocline is responsible for maintaining water column stability and isolating the surface waters from the deep waters.

semanticClimate annotation



From Wikipedia In oceanography, a halocline (from Greek *hals*, *halos* 'salt' and *klinein* 'to slope') is a cline, a subtype of chemocline caused by a strong, vertical salinity gradient within a body of water.

WGI

halosteric

Density changes induced by temperature changes only are called thermosteric, while density changes induced by salinity changes are called halosteric.

semanticClimate annotation

WGI

halosteric sea level change

Halosteric sea level change occurs as a result of salinity variations: higher salinity leads to higher density and decreases the volume per unit of mass.

Although both processes can be relevant on regional to local scales, only thermosteric changes impact the *global mean sea level (GMSL) change*, whereas the global mean halosteric change is negligible (Gregory et al., 2019).

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

hazard

The potential occurrence of a natural or human-induced physical event or trend that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources.

semanticClimate annotation



From Wikipedia A hazard is a potential source of harm. Substances, events, or circumstances can constitute hazards when their nature would allow them, even just theoretically, to cause damage to health, life, property, or any other interest of value.

Translations

- HI: විපදු

WGI,WGII

health

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (WHO).

References

- WHO (1948). Preamble to the Constitution of WHO as adopted by the International Health Conference, New York, 19 June - 22 July 1946; signed on 22 July 1946 by the representatives of 61

States (Official Records of WHO, no. 2, p. 100) and entered into force on 7 April 1948.

semanticClimate annotation

From Wikipedia In common usage and medicine, health, according to the World Health Organization, is "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity".

Translations

- HI: स्वास्थ्य

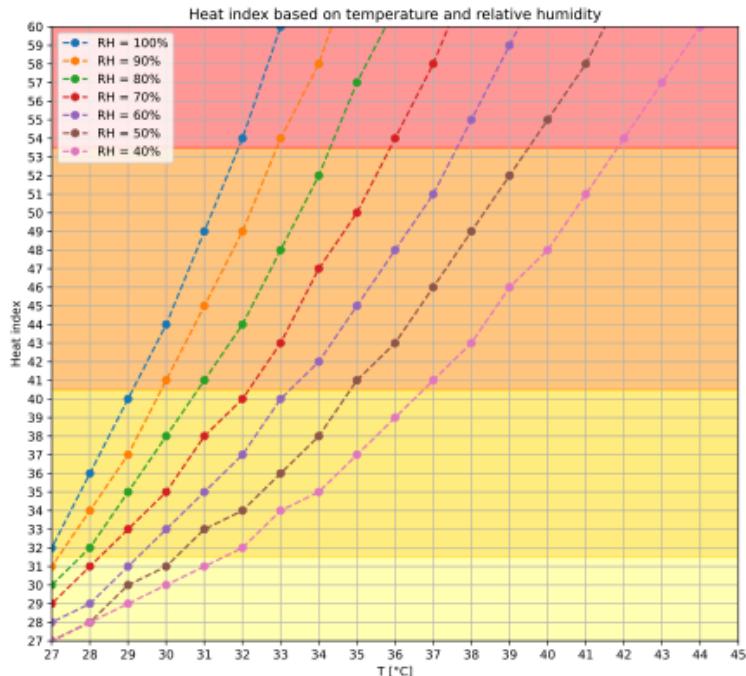
WGII

heat index

A measure of how hot the air feels to the human body.

The index is mainly based on surface air temperature and relative humidity and thus reflects the combined effect of high temperature and humidity on human physiology and provides a relative indication of potential health risks.

semanticClimate annotation



From Wikipedia The heat index (HI) is an index that combines air temperature and relative humidity, in shaded areas, to posit a human-perceived equivalent temperature, as how hot it would feel if the humidity were some other value in the shade.

Translations

- HI: তাপ সূচকাংক

WGI,WGII

heat stress

A range of conditions in, for example, terrestrial or aquatic organisms when the body absorbs excess heat during overexposure to high air or water temperatures or thermal radiation.

In aquatic water-breathing animals, hypoxia and acidification can exacerbate vulnerability to heat. Heat stress in mammals (including humans) and birds, both in air, is exacerbated by a detrimental combination of ambient heat, high humidity and low wind speeds, causing regulation of body temperature to fail.

semanticClimate annotation

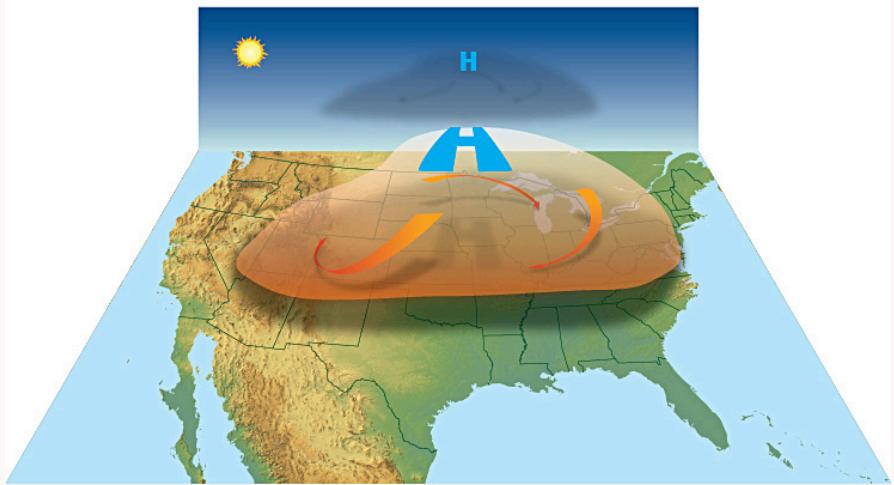
WGI,WGII

heatwave

A period of abnormally hot weather, often defined with reference to a relative temperature threshold, lasting from two days to months.

Heatwaves and warm spells have various and, in some cases, overlapping definitions.

semanticClimate annotation



From Wikipedia

Translations

- HI: ग्रीष्म लहर

WGII,WGII

heavy precipitation event

An extreme/heavy precipitation event is an event that is of very high magnitude with a very rare occurrence at a particular place.

Types of extreme precipitation may vary depending on its duration, hourly, daily or multi-days (e.g., 5 days), though all of them qualitatively represent high magnitude. The intensity of such events may be defined with

block maxima approach such as annual maxima or with peak over threshold approach, such as rainfall above 95th or 99th percentile at a particular space.

semanticClimate annotation

WGII,WGII

hedonic

Subjective well-being concept based on the idea that attaining pleasure and avoiding pain leads to happiness (Ryan and Deci, 2001).

Parent-term

- Well-being

semanticClimate annotation

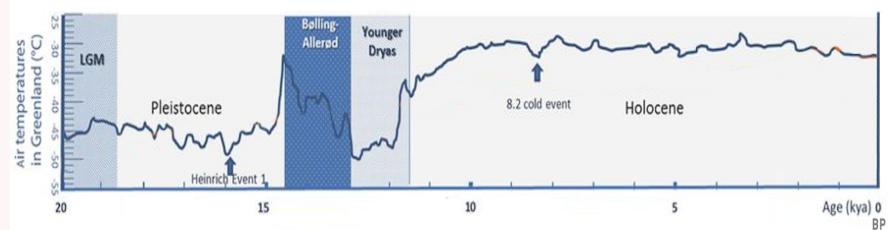
WGIII

heinrich event

Distinct layers of coarse-grained sediments comprised of ice-rafted debris identified across marine sediment cores in the North Atlantic.

These sedimentary layers are closely associated with millennial-scale cooling events in the North Atlantic and a distinct pattern of global temperature and hydrological changes that are largely consistent with evidence for a slowdown, or even near-collapse, of the *Atlantic Meridional Overturning Circulation (AMOC)* during these times.

semanticClimate annotation



From Wikipedia A Heinrich event is a natural phenomenon in which large groups of icebergs break off from the Laurentide Ice Sheet and traverse the Hudson Strait into the North Atlantic.

WGI

heterotrophic respiration

The conversion of organic matter to 2CO_2 by organisms other than autotrophs.

semanticClimate annotation

WGI

hindcast or retrospective forecast

A forecast made for a period in the past using only information available before the beginning of the forecast.

A sequence of hindcasts can be used to calibrate the forecast system and/or provide a measure of the average skill that the forecast system has exhibited in the past as a guide to the skill that might be expected in the future.

semanticClimate annotation

WGI

holocene

The current interglacial geological epoch, the second of two epochs within the Quaternary Period, the preceding being the Pleistocene.

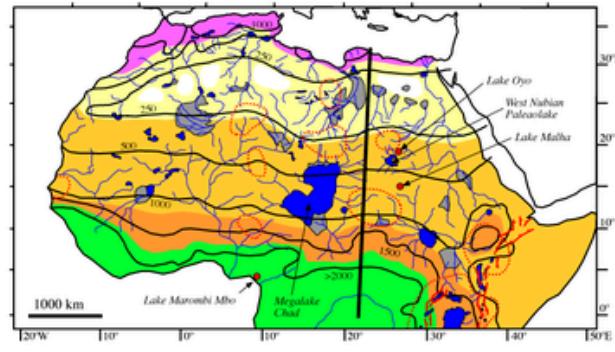
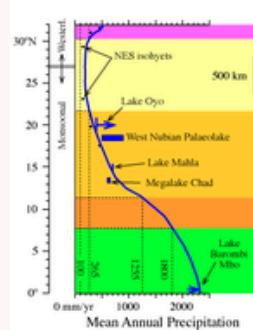
The International Commission on Stratigraphy (ICS) defines the start of the Holocene Epoch at 11,700 years before 2000 (Walker et al., 2019). It encompasses the mid-Holocene (MH), the 1000-year-long interval centred at 6000 years before 1950; a period of long-standing focus for climate modelling, with enhanced seasonality in the Northern Hemisphere and decreased seasonality in the Southern Hemisphere. The early part of the Holocene is marked by the late stages of *deglaciation* of Pleistocene land ice, sea level rise, and the occurrence of warm phases that affected different regions at different times, often referred to as the 'Holocene Thermal Maximum'. In addition, the epoch includes the post-glacial interval, which began approximately 7000 years ago when the fundamental features of the modern *climate system* were essentially in place, as the influence of remnant Pleistocene *ice sheets* waned.

References

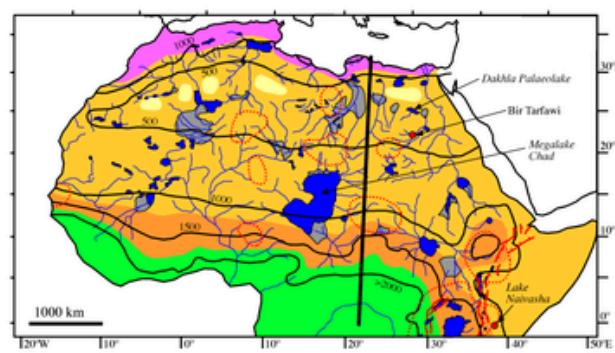
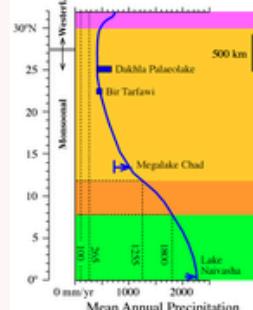
- Otto-Bliesner et al. (10.5194/gmd-10-3979-2017)

semanticClimate annotation

a Holocene



b Eemian



Savannah

- Grassland (<10 % woody cover)
- Wooded grassland (10-40% woody cover)
- Woodland (40-80 % woody cover)

Mediterranean & sub-Mediterranean

- Desert
- Forest (>80 % woody cover)

River

Lake

Volcanism & uplift

Alluvial fan/plain

East African Rift System

From Wikipedia The Holocene (/hɒl.əsi:n, -ou-, 'hōʊ.lē-, -lōʊ-/) is the current geological epoch. It began approximately 9,700 years before the Common Era (BCE) (11,650 cal years BP, or 300 HE).

Translations

- HI: ନୂତନତମ ଯୁଗ

WGI

household carbon footprint

The carbon footprint of an individual household, inclusive of the direct and indirect carbon dioxide (CO₂) emissions associated with home energy use, transportation, food provision, and consumption of other goods and services associated with household expenditures.

Parent-term

- Carbon footprint

semanticClimate annotation

WGIII

human behaviour

The responses of persons or groups to a particular situation, here likely to relate to climate change.

Human behaviour covers the range of actions by individuals, communities, organisations, governments and at the international level.

Sub-terms

- Adaptation behaviour

semanticClimate annotation

WGIII,WGII

human influence on the climate system

Human-driven activities that lead to changes in the climate system due to perturbations of the Earth's energy budget (also called anthropogenic forcing).

Human influence results from emissions of *greenhouse gases*, *aerosols*, *ozone-depleting substances (ODSs)*, and *land-use change*.

semanticClimate annotation

WGI

human mobility

The permanent or semi-permanent move by a person for at least 1 year and involving crossing an administrative, but not necessarily a national, border.

semanticClimate annotation

WGII

human rights

Rights that are inherent to all human beings, universal, inalienable, and indivisible, typically expressed and guaranteed by law.

They include the right to life, economic, social, and cultural rights, and the right to development and self-determination (UNOHCHR, 2018).

semanticClimate annotation

From Wikipedia Human rights are moral principles or norms for certain standards of human behaviour and are regularly protected in municipal and international law.

Translations

- HI: मानव अधिकार

WGIII,WGII

human security

A condition that is met when the vital core of human lives is protected, and when people have the freedom and capacity to live with dignity.

In the context of climate change, the vital core of human lives includes the universal and culturally specific, material and non-material elements necessary for people to act on behalf of their interests and to live with dignity.

semanticClimate annotation

WGIII,WGII

human system

Any system in which human organisations and institutions play a major role.

Often, but not always, the term is synonymous with society or social system. Systems such as agricultural systems, urban systems, political systems, technological systems and economic systems are all human systems in the sense applied in this report.

semanticClimate annotation

WGIII, WGII, WGI

hydroclimate

Part of the *climate* pertaining to the hydrology of a *region*.

semanticClimate annotation

Translations

- HI: जलजलवायु

WGI

hydrofluorocarbons

A type of greenhouse gas (GHG), HFCs are organic compounds that contain fluorine, carbon and hydrogen atoms and they are produced commercially as a substitute for chlorofluorocarbons (CFCs).

They are mainly used in refrigeration and semiconductor manufacturing.

semanticClimate annotation

WGI

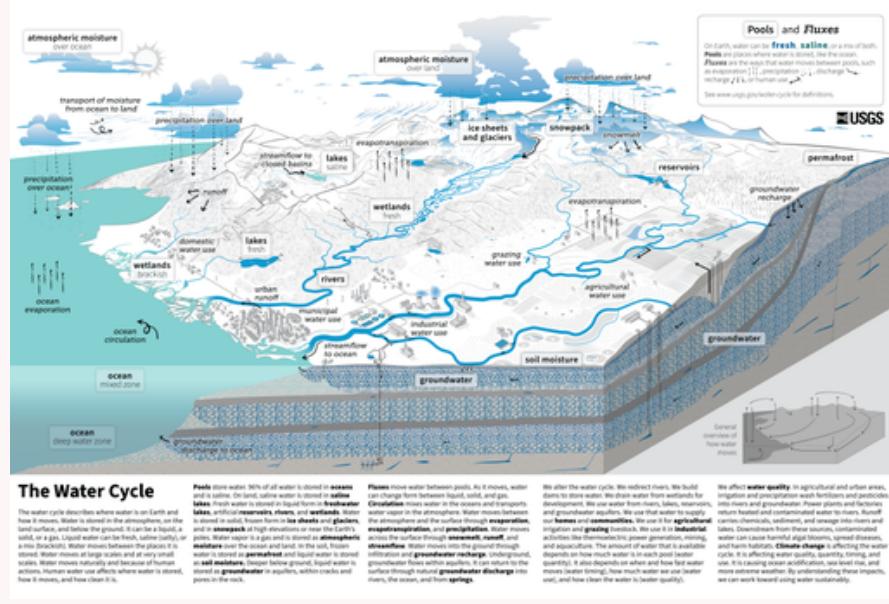
HFCs

hydrological cycle

The cycle in which water evaporates from the ocean and the land surface, is carried over the Earth in atmospheric circulation as water vapour, condenses to form clouds, precipitates over the ocean and land as rain or snow, which on land can be intercepted by trees and vegetation, potentially accumulating as snow or ice, provides runoff on the land surface, infiltrates into soils, recharges groundwater, discharges into streams, and ultimately, flows into the oceans as rivers, polar glaciers and ice sheets, from which it will eventually evaporate again.

The various systems involved in the hydrological cycle are usually referred to as hydrological systems.

semanticClimate annotation



From Wikipedia The water cycle, also known as the hydrologic cycle or the hydrological cycle, is a biogeochemical cycle that describes the continuous movement of water on, above and below the surface of the Earth.

Translations

- HI: जल चक्र

WGII,WGI

hydrological drought

A period with large *runoff* and water deficits in rivers, lakes and reservoirs.

Parent-term

- Drought

semanticClimate annotation

WGI,WGII

hydrological sensitivity

The linear change in global mean precipitation per degree Celsius of *global mean surface air temperature (GSAT)* change once precipitation

changes related to fast atmospheric and land surface adjustments to radiative forcings have occurred.

Units are % per °C although it can also be calculated as W m⁻² per °C.

semanticClimate annotation

WGI

η

hydropower

Power harnessed from the flow of water.

semanticClimate annotation



From Wikipedia Hydropower (from Ancient Greek ὕδωρ, "water"), also known as water power, is the use of falling or fast-running water to produce electricity or to power machines.

Translations

- HI: पनविजली

WGII,WGIII

hydrosphere

The component of the *climate system* comprising liquid surface and subterranean water, such as in oceans, seas, rivers, freshwater lakes, underground water, *wetlands*, etc.

semanticClimate annotation



From Wikipedia The hydrosphere (from Ancient Greek ὕδωρ (húdōr) 'water', and σφαῖρα (sphaîra) 'sphere') is the combined mass of water found on, under, and above the surface of a planet, minor planet, or natural satellite.

Translations

- HI: જલમણલ

WGI

hyperthermal events

Geologically abrupt global warming events of the past associated with disturbances of the carbon cycle and impacts on the biosphere.

semanticClimate annotation

WGII

hypoxic

Conditions of low dissolved oxygen in shallow water ocean and freshwater environments.

There is no universal threshold for hypoxia. A value around $60 \mu\text{mol kg}^{-1}$ has commonly been used for some estuarine systems, although this does not necessarily directly translate into biological impacts. Anoxic conditions occur where there is no oxygen present at all.

semanticClimate annotation

WGI,WGII

hypoxic events

Events that lead to deficiencies of oxygen in water bodies.

semanticClimate annotation

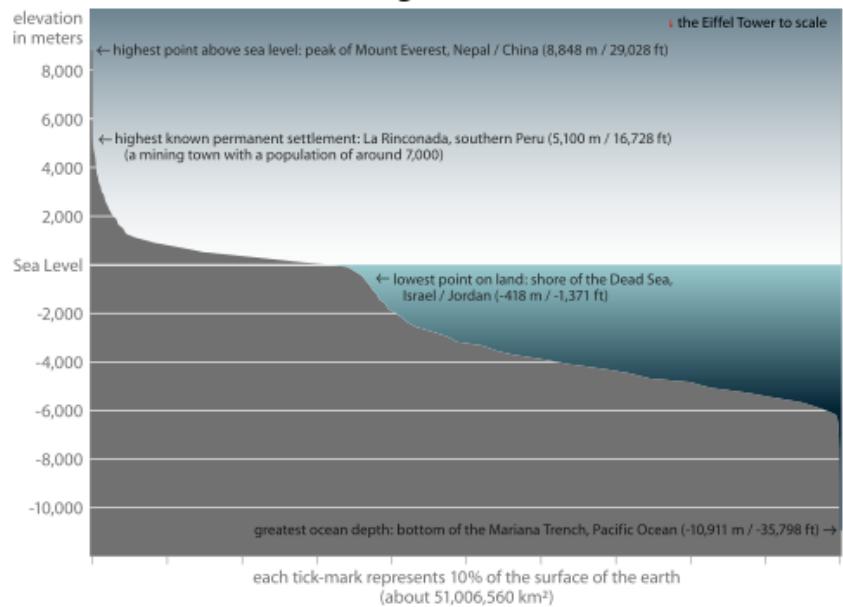
WGII

hypsometry

The distribution of land or ice surface as a function of altitude.

semanticClimate annotation

Elevation Histogram of the Earth's Crust



From Wikipedia

WGI

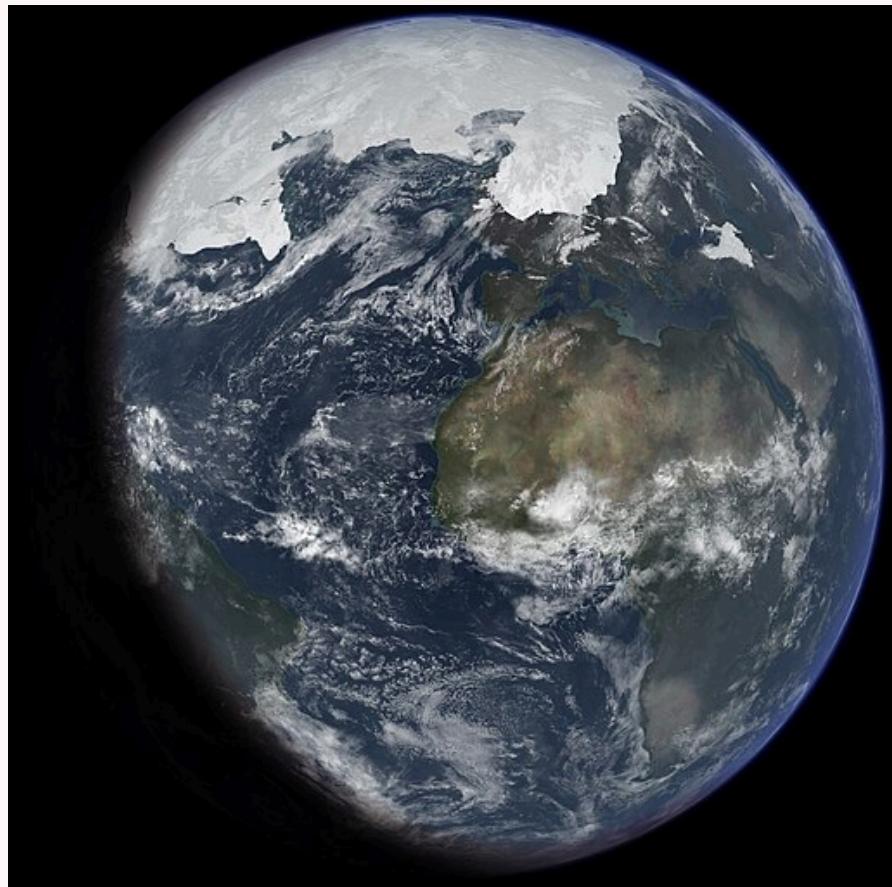
I

ice age

An informal term for a geological period characterized by a long-term reduction in the temperature of the Earth's *climate*, resulting in the presence or expansion of *ice sheets* and *glaciers*.

Among the Earth's ice ages is the current Quaternary Period, characterized by alternating *glacial* and *interglacial* intervals.

semanticClimate annotation



From Wikipedia An ice age is a long period of reduction in the temperature of Earth's surface and atmosphere, resulting in the presence or expansion of continental and polar ice sheets and alpine glaciers.

Translations

- HI: हिमयुग

WGI

ice-albedo feedback

A *climate feedback* involving changes in the Earth's surface *albedo*.

Snow and ice have an albedo much higher (up to ~0.8) than the average planetary albedo (~0.3). With increasing temperatures, it is anticipated that snow and ice extent will decrease, the Earth's overall albedo will decrease and more *solar radiation* will be absorbed, warming the Earth further.

semanticClimate annotation

WGI

ice core

A cylinder of ice drilled out of a *glacier* or *ice sheet* to determine the physical properties of the ice body and to gain information on past changes in *climate* and composition of the *atmosphere* that are preserved in the ice or in air trapped in the ice.

semanticClimate annotation

From Wikipedia An ice core is a core sample that is typically removed from an ice sheet or a high mountain glacier.

WGI

ice sheet

An ice body originating on land that covers an area of continental size, generally defined as covering >50,000 km², and that has formed over thousands of years through *accumulation* and compaction of snow.

An ice sheet flows outward from a high central ice plateau with a small average surface slope. The margins usually slope more steeply, and most ice is *discharged* through fast-flowing ice streams or outlet *glaciers*, often into the sea or into *ice shelves* floating on the sea. There are only two ice sheets in the modern world, one on Greenland and one on Antarctica. The latter is divided into the East Antarctic Ice Sheet (EAIS), the West

Antarctic Ice Sheet (WAIS) and the Antarctic Peninsula Ice Sheet. During glacial periods, there were other ice sheets.

semanticClimate annotation



From Wikipedia In glaciology, an ice sheet, also known as a continental glacier, is a mass of glacial ice that covers surrounding terrain and is greater than 50,000 km² (19,000 sq mi).

Translations

- HI: हिमचादर

WGII,WGI

ice shelf

A floating slab of ice originating from *land* of considerable thickness extending from the *coast* (usually of great horizontal extent with a very gently sloping surface), resulting from the flow of *ice sheets*, initially formed by the accumulation of snow, and often filling embayments in the coastline of an ice sheet.

Nearly all ice shelves are in Antarctica, where most of the ice *discharged* into the *ocean* flows via ice shelves.



semanticClimate annotation

WGI

ice stream

A stream of ice with strongly enhanced flow that is part of an *ice sheet*.

It is often separated from surrounding ice by strongly sheared, crevassed margins.

semanticClimate annotation

From Wikipedia An ice stream is a region of fast-moving ice within an ice sheet. It is a type of glacier, a body of ice that moves under its own weight.

Translations

- HI: हिमधारा

WGI

iceberg

Large piece of freshwater ice broken off from a *glacier* or an *ice shelf* during *calving* and floating in open water (at least 5 m height above sea level).

Smaller pieces of floating ice known as 'bergy bits' (less than 5 m above sea level) or 'growlers' (less than 2 m above sea level) can originate from glaciers or ice shelves, or from the breaking up of a large iceberg. Icebergs can also be classified by shape, most commonly being either tabular (steep sides and a flat top) or non-tabular (varying shapes, with domes and spires) (NOAA, 2021). In lakes, icebergs can originate by breaking off shelf ice, which forms through freezing of a lake surface.



semanticClimate annotation

Translations

- HI: हिमखंड

WGI

impacts

The consequences of realised risks on natural and human systems, where risks result from the interactions of climate-related hazards (including extreme weather/climate events), exposure, and vulnerability.

Impacts generally refer to effects on lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services (including ecosystem services), and infrastructure. Impacts may be referred to as consequences or outcomes, and can be adverse or beneficial.

semanticClimate annotation

WGIII,WGII

income

The maximum amount that a household, or other unit, can consume without reducing its real net worth.

Total income is the broadest measure of income and refers to regular receipts such as wages and salaries, income from self-employment, interest and dividends from invested funds, pensions or other benefits from social insurance, and other current transfers receivable. OECD (2003).

semanticClimate annotation

WGII

incremental adaptation

Adaptation that maintains the essence and integrity of a system or process at a given scale (Park et al., 2012).

In some cases, incremental adaptation can accrue to result in transformational adaptation (Tàbara et al., 2019; Termeer et al., 2017). Incremental adaptations to change in climate are understood as extensions of actions and behaviours that already reduce the losses or enhance the benefits of natural variations in extreme weather/climate events.

Parent-term

- [Adaptation](#)

semanticClimate annotation

WGIII,WGII

Indian Ocean Dipole

A mode of interannual variability that features an east–west dipole of [sea surface temperature](#) anomalies in the tropical Indian Ocean.

Its positive phase shows concurrent sea surface cooling off Sumatra and Java and warming off Somalia in the west, combined with anomalous surface easterlies along the equator, while the opposite anomalies are seen in the negative phase. The IOD typically develops in boreal summer and matures in boreal autumn and controls part of the rainfall interannual variability in Australia, South Eastern Asia and Eastern Africa. See Section AIV.2.4 in Annex IV of the AR6 WGI report.

[Wikipedia Page](#)

semanticClimate annotation

Translations

- HI: हिंद महासागर द्विधुत्व

WGI
IOD

Indian Ocean basin mode

A mode of interannual variability characterized by a temporal alternation of basin-wide warming and cooling of the Indian Ocean sea surface.

It mostly develops in response to *El Niño–Southern Oscillation (ENSO)*, but often persists after ENSO's equatorial eastern Pacific signal has dissipated. The IOB affects atmospheric circulation, temperature, and precipitation in South, South East, and East Asia as well as Africa, and modulates *tropical cyclone* activity in the north western Pacific. See Section AIV.2.4 in Annex IV of the AR6 WGI report.

semanticClimate annotation

WGI
IOB

Indigenous Peoples

Indigenous Peoples and Nations are those that, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them.

They form at present principally non-dominant sectors of society and are often determined to preserve, develop, and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and common law system. Cobo (1987).

semanticClimate annotation



From Wikipedia Indigenous peoples are the earliest known inhabitants of an area and their descendants, especially one that has been colonized by a now-dominant group of settlers.

Translations

- HI: मूल निवासी

WGII

indigenous knowledge

The understandings, skills and philosophies developed by societies with long histories of interaction with their natural surroundings.

For many indigenous peoples, IK informs decision-making about fundamental aspects of life, from day-to-day activities to longer term actions. This knowledge is integral to cultural complexes, which also encompass language, systems of classification, resource use practices, social interactions, values, ritual and spirituality. These distinctive ways of knowing are important facets of the world's cultural diversity (UNESCO, 2018).

semanticClimate annotation

From Wikipedia Traditional knowledge (TK), indigenous knowledge (IK), folk knowledge, and local knowledge, generally refer to knowledge systems embedded in the cultural traditions of regional, indigenous, or local communities.

Translations

- HI: स्थानीय ज्ञान

WGIII,WGII
IK

indirect emissions

Emissions that are a consequence of the activities within well-defined boundaries of, for instance, a region, an economic sector, a company or process, but which occur outside the specified boundaries.

For example, emissions are described as indirect if they relate to the use of heat but physically arise outside the boundaries of the heat user, or to electricity production but physically arise outside of the boundaries of the power supply sector.

semanticClimate annotation

WGIII

indirect land-use change

Land-use change outside the area of focus that occurs as a consequence of change in use or management of land within the area of focus, such as through market or policy drivers.

For example, if agricultural land is diverted to biofuel production, forest clearance may occur elsewhere to replace the former agricultural production.

Parent-term

- Land-use change (LUC)

semanticClimate annotation

WGIII,WGI
iLUC

industrial revolution

A period of rapid industrial growth with far-reaching social and economic consequences, beginning in Britain during the second half of the 18th century and spreading to Europe and later to other countries including the United States.

The invention of the steam engine was an important trigger of this development. The industrial revolution marks the beginning of a strong increase in the use of *fossil fuels*, initially coal, and hence emission of CO_2 carbon dioxide (CO_2).



semanticClimate annotation

WGIII,WGI

inequality

Uneven opportunities and social positions, and processes of discrimination within a group or society, based on gender, class, ethnicity, age and (dis)ability, often produced by uneven development.

Income inequality refers to gaps between the highest and lowest income earners within a country and between countries.

Parent-term

- Equality

semanticClimate annotation

WGII,WGIII

informal settlement

A term given to settlements or residential areas that by at least one criterion fall outside official rules and regulations.

Most informal settlements have poor housing (with widespread use of temporary materials) and are developed on land that is occupied illegally with high levels of overcrowding. In most such settlements, provision for safe water, sanitation, drainage, paved roads and basic services is inadequate or lacking. The term 'slum' is often used for informal settlements, although it is misleading as many informal settlements develop into good quality residential areas, especially where governments support such development.

semanticClimate annotation

WGII

infrastructure

The designed and built set of physical systems and corresponding institutional arrangements that mediate between people, their communities and the broader environment to provide services that support economic growth, health, quality of life and safety (Chester, 2019; Dawson et al., 2018).

Sub-terms

- [Blue infrastructure](#)
- [Green infrastructure](#)
- [Grey infrastructure](#)
- [Social infrastructure](#)

References

- Dawson R. J et al. (2018): A systems framework for national assessment of climate risks to infrastructure. Phil. Trans. R. Soc. A 376: 20170298. <http://dx.doi.org/10.1098/rsta.2017.0298>
- Chester, M.V. Sustainability and infrastructure challenges. Nat Sustain 2, 265–266 (2019). <https://doi.org/10.1038/s41893-019-0272-8>

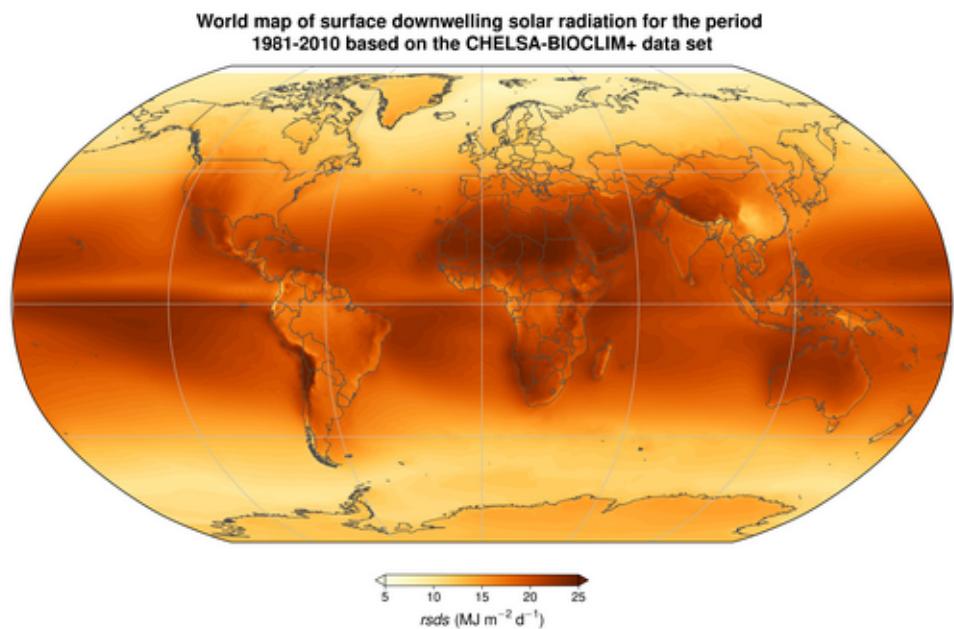
semanticClimate annotation

WGIII,WGII

insolation

The amount of *solar radiation* reaching the Earth by latitude and by season measured in W m^{-2} .

Usually, insolation refers to the radiation arriving at the top of the *atmosphere*. Sometimes it is specified as referring to the radiation arriving at the Earth's surface.



semanticClimate annotation

WGI

instantaneous radiative forcing due to aerosol-cloud interactions

The radiative forcing (or radiative effect, if the perturbation is internally generated) due to the change in number or size distribution of cloud droplets or ice crystals that is the proximate result of an aerosol perturbation, with other variables (in particular total cloud water content) remaining equal.

In liquid clouds, an increase in cloud droplet concentration and surface area would increase the cloud albedo. This effect is also known as the cloud albedo effect, first indirect effect, or Twomey effect. It is a largely theoretical concept that cannot readily be isolated in observations or comprehensive process models due to the ubiquity of adjustments.

Parent-term

- Aerosol–cloud interaction

semanticClimate annotation

WGI
IRFaci
or effect

instantaneous radiative forcing due to aerosol–radiation interactions

The radiative forcing (or radiative effect, if the perturbation is internally generated) of an aerosol perturbation due directly to aerosol–radiation interactions, with all environmental variables remaining unaffected.

Traditionally known in the literature as the direct aerosol forcing (or effect).

Parent-term

- Aerosol–radiation interaction

semanticClimate annotation

WGI
IRFari
or effect

institutional capacity

Building and strengthening individual organisations and providing technical and management training to support integrated planning and decision-making processes between organisations and people, as well as empowerment, social capital, and an enabling environment, including culture, values and power relations (Willems and Baumert, 2003).

semanticClimate annotation

WGIII,WGII

institutions

Rules, norms and conventions that guide, constrain or enable human behaviours and practices. Institutions can be formally established, for instance through laws and regulations, or informally established, for instance by traditions or customs. Institutions may spur, hinder, strengthen, weaken or distort the emergence, adoption and implementation of climate action and climate governance.

[Note: Institutions can also refer to a large organisation.]

semanticClimate annotation

WGIII,WGII

insurance/reinsurance

A family of financial instruments for sharing and transferring risk among a pool of at-risk households, businesses and/or governments.

semanticClimate annotation

WGII

integrated assessment

A method of analysis that combines results and models from the physical, biological, economic and social sciences and the interactions among these components in a consistent framework to evaluate the status and consequences of environmental change and the policy responses to it.

semanticClimate annotation

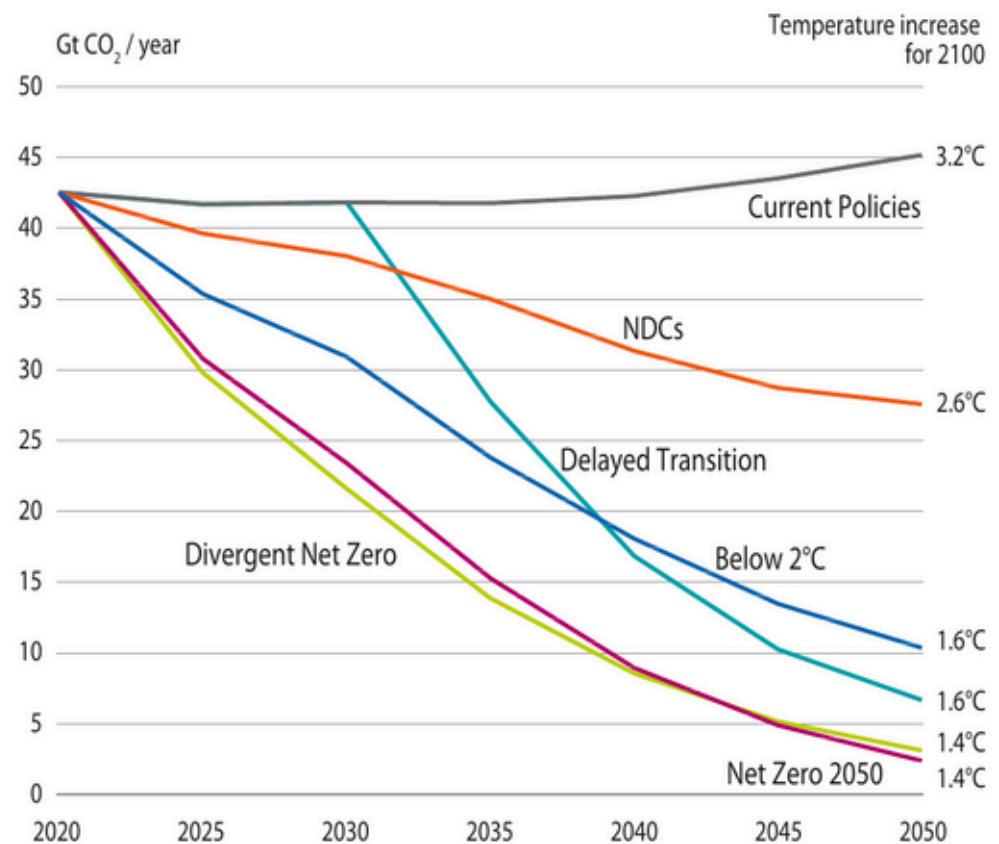
WGIII,WGII

integrated assessment model

Models that integrate knowledge from two or more domains into a single framework.

They are one of the main tools for undertaking integrated assessments. One class of IAM used with respect to climate change *mitigation* may include representations of: multiple sectors of the economy, such as energy, *land use* and *land-use change*; interactions between sectors; the economy as a whole; associated greenhouse gas (GHG) emissions and *sinks*; and reduced representations of the *climate system*. This class of model is used to assess linkages between economic, social and technological development and the evolution of the climate system. Another class of IAM additionally includes representations of the costs associated with climate change *impacts*, but includes less detailed representations of economic systems. These can be used to assess impacts and mitigation in a cost–benefit framework and have been used to estimate the social cost of carbon.

CO₂ emissions by scenario



semanticClimate annotation

WGIII,WGII,WGI
IAM

integrated assessment scenario ensemble

A set of modelled scenarios from an intercomparison of integrated assessment models (IAMs) based on a systematic variation of harmonised scenario designs.

semanticClimate annotation

WGIII

Inter-decadal Pacific Oscillation

An equatorially symmetric pattern of sea surface temperature variability at decadal-to-inter-decadal time scales.

While the Pacific Decadal Oscillation (PDO) and its South Pacific counterpart, the South Pacific Decadal Oscillation (SPDO), are considered as physically distinct modes, the tropical Pacific decadal–inter-decadal variability can drive both the PDO and SPDO, forming the IPO as a synchronized pan-Pacific variability. Its spatial pattern of sea surface temperature anomalies is similar to that of the El Niño–Southern Oscillation (ENSO), but with a broader meridional extent in the tropical signal and more weights in the extratropics compared to the tropics. In the AR6 WGI report, it is encapsulated within the definition and description of Pacific Decadal Variability (PDV). See also Section AIV.2.6 in Annex IV of the AR6 WGI report.

Parent-term

- Pacific Decadal Variability (PDV)

semanticClimate annotation

WGI
IPO

Inter-tropical Convergence Zone

The Inter-tropical Convergence Zone is an equatorial zonal belt of low pressure, strong convection and heavy precipitation near the equator where the north-east trade winds meet the south-east trade winds.

This band moves seasonally.

semanticClimate annotation



From Wikipedia The Intertropical Convergence Zone (ITCZ /ɪtʃ/ ITCZ), known by sailors as the doldrums or the calms because of its monotonous windless weather, is the area where the northeast and the southeast trade winds converge.

Translations

- HI: अंतर-उष्णाकटिबंधीय अभिसरण क्षेत्र

WGI
ITCZ

interglacial or interglaciation

A globally warm period lasting thousands of years between *glacial* periods within an *ice age*.

Generally coincides with odd-numbered *marine isotope stages (MIS)* when mean sea level was close to present. The Last Interglacial (LIG) occurred between about 129 and 116 ka (thousand years) before present (defined as 1950) although the warm period started in some areas a few thousand years earlier. In terms of MIS, *interglaciations* are defined as the interval between the midpoint of the preceding termination and the onset of the next glaciation. The LIG coincides with MIS 5e. The present interglaciation, the *Holocene*, started at 11,700 years before 2000 CE, although global mean sea level did not approach its present position until roughly 7000 years ago.

semanticClimate annotation

WGI

internal climate variability

Deviations of climate variables from a given mean state (including the occurrence of extremes, etc.) at all spatial and temporal scales beyond that of individual weather events.

Variability may be intrinsic, due to fluctuations of processes internal to the climate system.

semanticClimate annotation

WGI

internal variability

Fluctuations of the climate dynamical system when subject to a constant or periodic external forcing (such as the annual cycle).

Parent-term

- Climate variability

semanticClimate annotation

WGI

Internet of Things

The network of computing devices embedded in everyday objects such as cars, phones and computers, connected via the internet, enabling them to send and receive data.

semanticClimate annotation

WGIII
IoT

interpolation uncertainty

Uncertainty arising from a statistical or physical model-based interpolation of a field between available estimates to create a more spatio-temporally complete estimate.

Parent-term

- Uncertainty

semanticClimate annotation

WGI

interstadial or interstade

A brief period of regional climatic warming during a *glacial* or *interglacial* interval, often characterized by transient glacial retreats.

Interstadials are generally of short duration (hundreds to a few thousand years) compared to glacial or interglacial intervals (lasting many thousands to tens of thousands of years). One example of a regional interstadial event is based on millennial scale warming recorded by oxygen isotope ratios in Greenland *ice cores*, the so called "Greenland Interstadials" (Johnsen et al., 1992).

References

- Johnsen, S. J. et al. Irregular glacial interstadials recorded in a new Greenland ice core. *Nature* 359, 311–313 (1992).

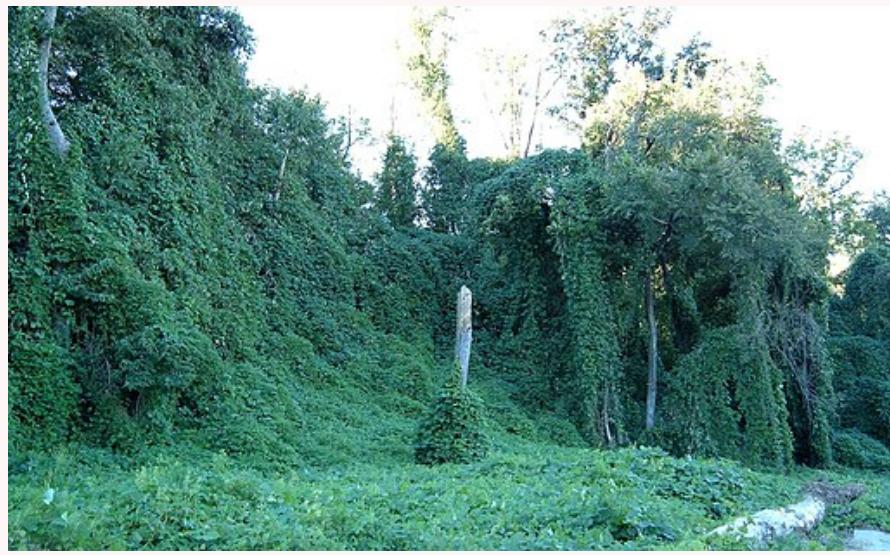
semanticClimate annotation

WGI

invasive species

A species that is not native to a specific location or nearby, lacking natural controls, and that has a tendency to rapidly increase in abundance, displacing native species. Invasive species may also damage the human economy or human health.

semanticClimate annotation



From Wikipedia An invasive or alien species is an introduced species to an environment that becomes overpopulated and harms its new environment.

Translations

- HI: आक्रामक जाति

WGII

irreversibility

A perturbed state of a *dynamical system* is defined as irreversible on a given time scale if the recovery from this state due to natural processes takes substantially longer than the time scale of interest.

semanticClimate annotation

WGI,WGIII

Isostatic or Isostasy

Isostasy refers to the response of the Earth to changes in surface load.

It includes the deformational and gravitational response. This response is elastic on short time scales, as in the Earth–ocean response to recent changes in mountain glaciation, or viscoelastic on longer time scales, as in the response to the last *deglaciation* following the *Last Glacial Maximum*.

semanticClimate annotation

From Wikipedia Isostasy (Greek *í̄sos* 'equal', *stásis* 'standstill') or isostatic equilibrium is the state of gravitational equilibrium between Earth's crust (or lithosphere) and mantle such that the crust "floats" at an elevation that depends on its thickness and density.

Translations

- HI: भू-संतुलन

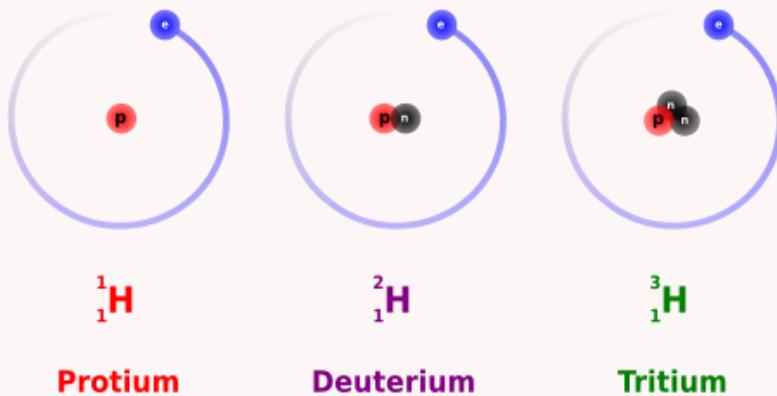
WGI

isotopes

Atoms of the same chemical element that have the same the number of protons but differ in the number of neutrons.

Some proton–neutron configurations are stable (stable isotopes), others are unstable undergoing spontaneous radioactive decay (radioisotopes). Most elements have more than one stable isotope. Isotopes can be used to trace transport processes or to study processes that change the isotopic ratio. Radioisotopes provide, in addition, time information that can be used for radiometric dating.

semanticClimate annotation



From Wikipedia Isotopes are distinct nuclear species (or nuclides, as technical term) of the same chemical element.

Translations

- HI: समस्थानिक

WGI

J

just transitions

A set of principles, processes and practices that aim to ensure that no people, workers, places, sectors, countries or regions are left behind in the transition from a high-carbon to a low-carbon economy.

It stresses the need for targeted and proactive measures from governments, agencies and authorities to ensure that any negative social, environmental or economic impacts of economy-wide transitions are minimised, while benefits are maximised for those disproportionately affected. Key principles of just transitions include: respect and dignity for vulnerable groups; fairness in energy access and use, social dialogue and democratic consultation with relevant stakeholders; the creation of decent jobs; social protection; and rights at work. Just transitions could include fairness in energy, land use and climate planning and decision-making processes; economic diversification based on low-carbon investments; realistic training/retraining programs that lead to decent work; gender-specific policies that promote equitable outcomes; the fostering of international cooperation and coordinated multilateral actions; and the eradication of poverty. Lastly, just transitions may embody the redressing of past harms and perceived injustices (ILO 2015; UNFCCC 2016).

Parent-term

- Transition

References

- ILO (2015) Guidelines for a just transition towards environmentally sustainable economies and societies for all. International Labour Organization. Switzerland
- UNFCCC (2016). Just transition of the workforce, and the creation of decent work and quality jobs. FCCC/TP/2016/7. UNFCCC.

semanticClimate annotation

WGIII,WGII

justice

Justice is concerned with setting out the moral or legal principles of fairness and equity in the way people are treated, often based on the ethics and values of society.

Sub-terms

- [Climate justice](#)
- [Procedural justice](#)
- [Social justice](#)

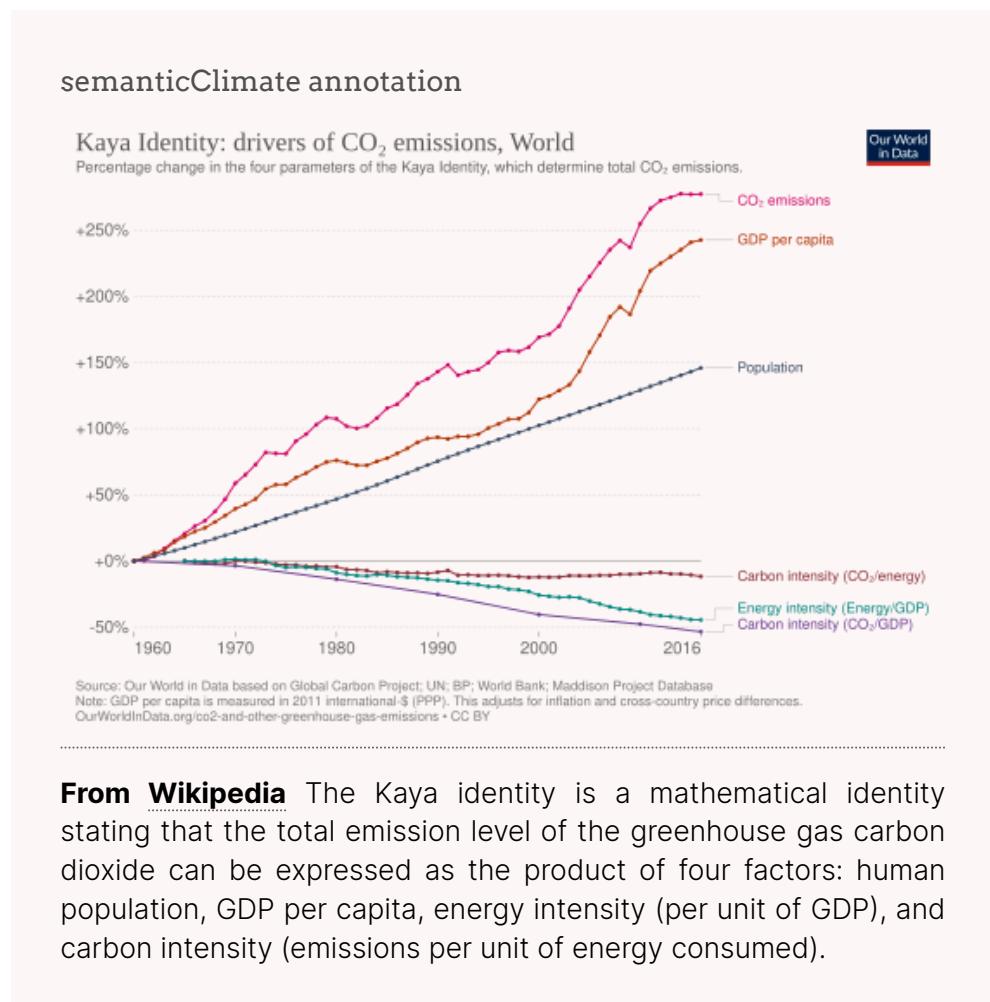
semanticClimate annotation

WGII,WGIII

K

kaya identity

In this identity, global emissions are equal to the population size, multiplied by per capita output (gross world product), multiplied by the energy intensity of production, multiplied by the carbon intensity of energy.



WGIII

key climate indicators

Key indicators constitute a finite set of distinct variables that may collectively point to important overall changes in the *climate system* of

broad societal relevance across the atmospheric, oceanic, cryospheric and biospheric domains, with land as an implicit cross-cutting theme.

Taken together, these indicators would be expected to both have changed and continue to change in the future in a coherent and consistent manner. See Cross-Chapter Box 2.2, Table 1 in the AR6 WGI report.

Parent-term

- Climate indicator

semanticClimate annotation

WGI

key risk

Key risks have potentially severe adverse consequences for humans and social-ecological systems resulting from the interaction of climate related hazards with vulnerabilities of societies and systems exposed.

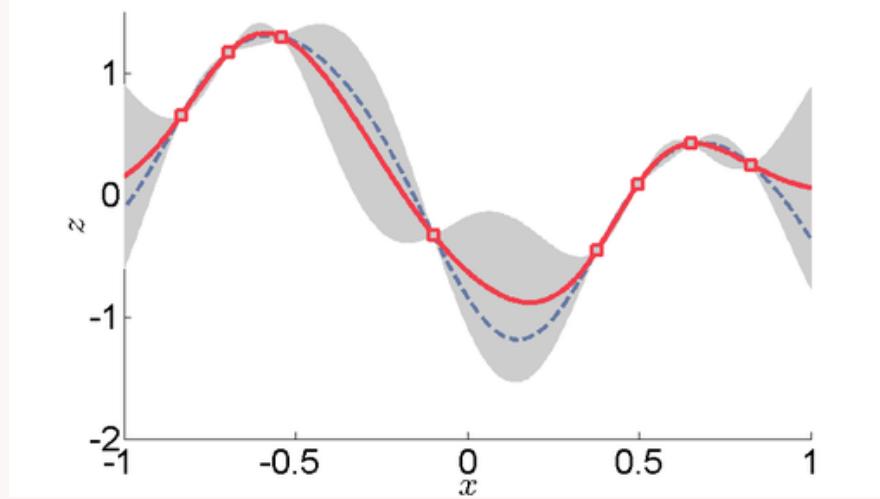
semanticClimate annotation

WGII

kriging

Kriging is a method of interpolation (normally spatial interpolation when used with atmospheric or oceanographic data) in which the interpolated values are estimated using a Gaussian process governed by prior covariances.

semanticClimate annotation



From Wikipedia In statistics, originally in geostatistics, kriging or Kriging, (pronounced /'kri:gɪŋ/) also known as Gaussian process regression, is a method of interpolation based on Gaussian process governed by prior covariances.

WGI

L

land

The terrestrial portion of the biosphere that comprises the natural resources (soil, near-surface air, vegetation and other biota, and water), the ecological processes, topography, and human settlements and infrastructure that operate within that system (FAO, 2007; UNCCD, 1994).

semanticClimate annotation



From Wikipedia Land, also known as dry land, ground, or earth, is the solid terrestrial surface of Earth not submerged by the ocean or another body of water. It makes up 29.2% of Earth's surface and includes all continents and islands.

Translations

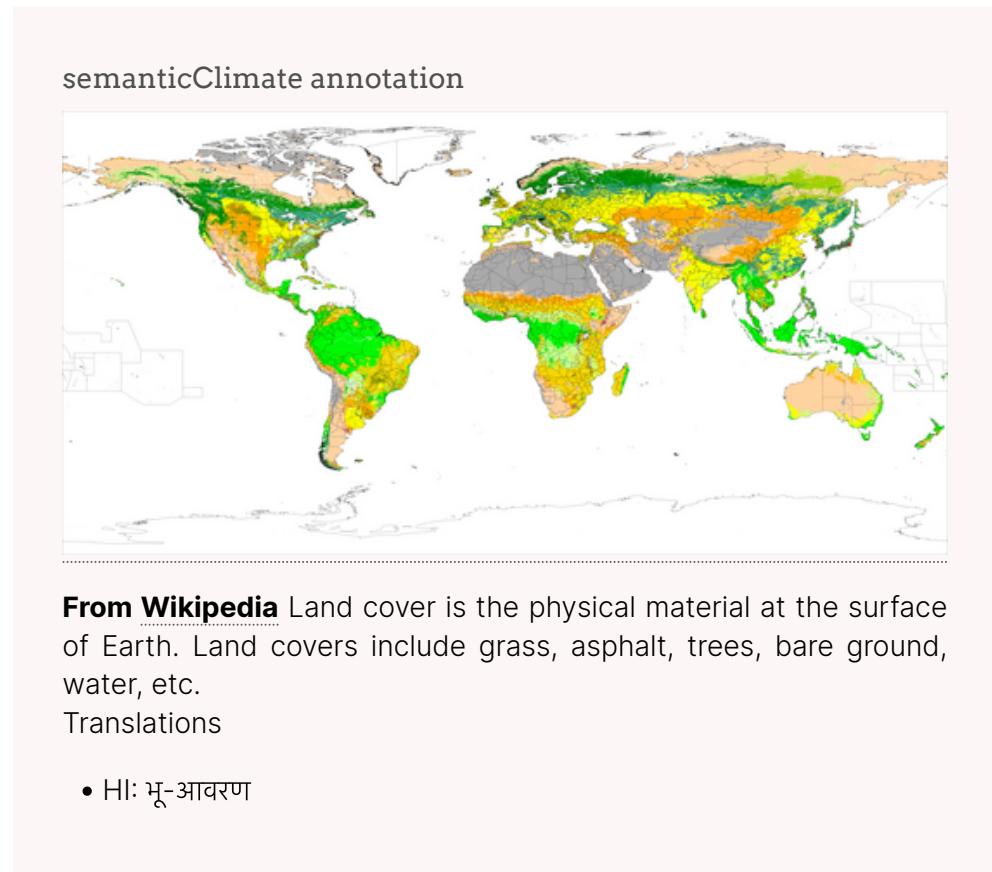
- HI: भूमि

WGIII,WGII,WGI

land cover

The biophysical coverage of *land* (e.g., bare soil, rocks, forests, buildings and roads or lakes).

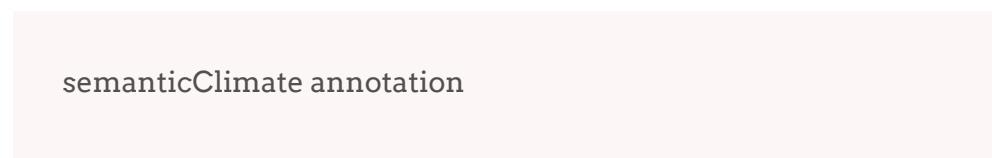
Land cover is often categorised in broad land-cover classes (e.g., deciduous forest, coniferous forest, mixed forest, grassland, bare ground). [Note: In some literature, land cover and land use are used interchangeably, but the two represent distinct classification systems. For example, the land cover class woodland can be under various land uses such as livestock grazing, recreation, conservation, or wood harvest.]



WGIII, WGII, WGI

land-cover change

Change from one *land cover* class to another, due to change in *land use* or change in natural conditions (Pongratz et al., 2018).



WGI, WGIII, WGII

land degradation

A negative trend in land condition, caused by direct or indirect human-induced processes including *anthropogenic* climate change, expressed as a long-term reduction or loss of at least one of the following: biological productivity, ecological integrity or value to humans.

[Note: This definition applies to forest and non-forest land. Changes in land condition resulting solely from natural processes (such as volcanic eruptions) are not considered to be land degradation. Reduction of biological productivity or ecological integrity or value to humans can constitute degradation, but any one of these changes need not necessarily be considered degradation.]

semanticClimate annotation



From Wikipedia Land degradation is a process in which the value of the biophysical environment is affected by a combination of human-induced processes acting upon the land.

Translations

- HI: भूमि अवक्रमण

WGIII,WGII

land degradation neutrality

A state whereby the amount and quality of land resources necessary to support *ecosystem* functions and services and enhance *food security* remain stable or increase within specified temporal and spatial scales and ecosystems (UNCCD, 2020).

semanticClimate annotation

WGIII

land management

The sum of land-use practices (e.g., sowing, fertilising, weeding, harvesting, thinning and clear-cutting) that take place within broader land-use categories (Pongratz et al., 2018).

Sub-terms

- Land management change

semanticClimate annotation

From Wikipedia Land management is the process of managing the use and development of land resources (in both urban and rural settings, but it is mostly managed in Urban places).

Translations

- HI: भू - प्रबंधन

WGIII,WGII

land management change

A change in land management that occurs within a *land-use* category.

Parent-term

- Land management

semanticClimate annotation

WGIII

land potential

The inherent, long-term potential of the *land* to sustainably generate *ecosystem services*, which reflects the capacity and *resilience* of the land-based natural capital, in the face of ongoing environmental change (UNEP, 2016).

semanticClimate annotation

Translations

- HI: भूमि क्षमता

WGIII

land rehabilitation

Direct or indirect actions undertaken with the aim of reinstating a level of *ecosystem* functionality, where the goal is provision of goods and services rather than ecological restoration (McDonald et al., 2016).

semanticClimate annotation



From Wikipedia Land rehabilitation as a part of environmental remediation is the process of returning the land in a given area to some degree of its former state, after some process (industry, natural disasters, etc.) has resulted in its damage.

Translations

- HI: भूमि पुनर्वास

WGIII

land restoration

The process of assisting the recovery of land from a degraded state (IPBES, 2018; McDonald et al. 2016).

References

- IPBES, 2018: The IPBES assessment report on land degradation and restoration. [Montanarella, L., Scholes, R., and Brainich, A. (eds.)]. Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem services, Bonn, Germany, 744 pp.
- McDonald, T., J. Jonson, and K.W. Dixon, 2016: National standards for the practice of ecological restoration in Australia. Restoration Ecology, 24(S1) S4-S32, doi:10.1111/rec.12359.

semanticClimate annotation



From Wikipedia Land restoration, which may include renaturalisation or rewilding, is the process of ecological restoration of a site to a natural landscape and habitat, safe for humans, wildlife, and plant communities.

Translations

- HI: भूमि पुनर्स्थापन

WGIII

land surface air temperature

The near-surface air temperature over land, typically measured at 1.25–2 m above the ground using standard meteorological equipment.

semanticClimate annotation

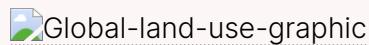
WGI
LSAT

land use

The total of arrangements, activities and inputs applied to a parcel of land.

The term land use is also used in the sense of the social and economic purposes for which land is managed (e.g., grazing, timber extraction, conservation and city dwelling). In national greenhouse gas (GHG) inventories, land use is classified according to the IPCC land-use categories of forest land, cropland, grassland, wetlands, settlements and other lands (see the 2006 IPCC Guidelines for National GHG Inventories and their 2019 Refinement for details (IPCC, 2006, 2019)).

semanticClimate annotation



From Wikipedia Land use involves the management and modification of natural environment or wilderness into built environment such as settlements and semi-natural habitats such as arable fields, pastures, and managed woods.

Translations

- HI: भूमि उपयोग

WGIII,WGII,WGI

land use, land-use change and forestry

In the context of national greenhouse gas (GHG) inventories under the United Nations Framework Convention on Climate Change (UNFCCC, 2019), LULUCF is a GHG inventory sector that covers anthropogenic emissions and removals of GHG in managed lands, excluding non-CO₂ agricultural emissions.

Following the 2006 IPCC Guidelines for National GHG Inventories and their 2019 Refinement, ‘anthropogenic’ land-related GHG fluxes are defined as all those occurring on ‘managed land’, that is, ‘where human

interventions and practices have been applied to perform production, ecological or social functions'. Since managed land may include carbon dioxide (CO₂) removals not considered as 'anthropogenic' in some of the scientific literature assessed in this report (e.g., removals associated with CO₂ fertilisation and N deposition), the land-related net GHG emission estimates from global models included in this report are not necessarily directly comparable with LULUCF estimates in National GHG Inventories. (IPCC 2006, 2019).

semanticClimate annotation

WGIII
LULUCF

land-use change

The change from one *land use* category to another.

Note that in some scientific literature, land-use change encompasses changes in land-use categories as well as changes in land management.

Sub-terms

- Indirect land-use change (iLUC)

References

- IPCC Special Report on Land Use, Land-Use Change, and Forestry (IPCC, 2000)
- 2006 IPCC Guidelines for National GHG Inventories (IPCC, 2006)

semanticClimate annotation

WGIII, WGII, WGI
LUC

land water storage

Land water storage (LWS) includes all surface water, *soil moisture*, groundwater storage and snow, but excludes water stored in *glaciers* and *ice sheets*.

Changes in LWS can be caused either by direct human intervention in the water cycle (e.g., storage of water in reservoirs by building dams in rivers, groundwater extraction from groundwater reservoirs for consumption and

irrigation, or *deforestation*) or by *climate* variations (e.g., changes in the amount of water in endorheic lakes and *wetlands*, the canopy, the soil, the *permafrost* and the snowpack). Land water storage changes caused by climate variations may also be indirectly affected by *anthropogenic* influences.

semanticClimate annotation

WGI
LWS

lapse rate

The rate of change of an atmospheric variable, usually temperature, with height.

The lapse rate is considered positive when the variable decreases with height.

semanticClimate annotation

From Wikipedia The lapse rate is the rate at which an atmospheric variable, normally temperature in Earth's atmosphere, falls with altitude.

WGI

large-scale

The climate system involves process interactions from the micro- to the global-scale.

Any threshold for defining 'large-scale' is arbitrary. Understanding of large-scale climate variability and change requires knowledge of both the response to external forcings and the role of internal variability. Many external forcings have substantial hemispheric or continental scale variations. Modes of climate variability are driven by ocean-basin-scale processes. Thus we define large-scale to include ocean-basin and continental scales as well as hemispheric and global scales.

semanticClimate annotation

WGI

last millennium

The interval of the *Common Era (CE)* between 1001 and 2000 CE.

Encompasses the Little Ice Age, a roughly defined period characterized by multiple expansions of mountain *glaciers* worldwide, the timing of which differs among regions but generally occurred between 1400 CE and 1900 CE. The last millennium also mostly encompasses the Medieval Warm Period (also called the Medieval Climate Anomaly), a roughly defined period of relatively warm conditions or other *climate* excursions such as extensive *drought*, the timing and magnitude of which differ among regions, but generally occurred between 900 and 1400 CE. Transient *climate model* experiments by the Paleoclimate Modelling Intercomparison Project (PMIP) for the last millennium extend from 850–1849 CE.

semanticClimate annotation

WGI

latent heat flux

The turbulent *flux* of heat from the Earth's surface to the *atmosphere* that is associated with *evaporation* or condensation of water vapour at the surface; a component of the surface energy budget.

semanticClimate annotation

WGI, WGIII

leakage

The effects of policies that result in a displacement of the environmental impact, thereby counteracting the intended effects of the initial policies.

semanticClimate annotation

WGIII

leapfrogging

The ability of developing countries to bypass intermediate technologies and jump straight to advanced clean technologies.

semanticClimate annotation

From Wikipedia Leapfrogging is a concept used in many domains of the economics and business fields, and was originally developed in the area of industrial organization and economic growth.

WGIII

Least Developed Countries

A list of countries designated by the Economic and Social Council of the United Nations (ECOSOC) as meeting three criteria: (1) a low income criterion below a certain threshold of gross national income per capita of between USD 750 and USD 900, (2) a human resource weakness based on indicators of health, education and adult literacy, and (3) an economic vulnerability weakness based on indicators on instability of agricultural production, instability of export of goods and services, economic importance of non-traditional activities, merchandise export concentration and the handicap of economic smallness.

Countries in this category are eligible for a number of programmes focused on assisting countries most in need. These privileges include certain benefits under the articles of the United Nations Framework Convention on Climate Change (UNFCCC).

semanticClimate annotation

WGII
LDCs

lifecycle assessment

Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product or service throughout its lifecycle (ISO, 2018).

semanticClimate annotation

WGIII
LCA

lifetime

Lifetime is a general term used for various time scales characterizing the rate of processes affecting the concentration of trace gases.

The following lifetimes may be distinguished:

Sub-terms

- Response time or adjustment time (Ta)
- Turnover time (T)

semanticClimate annotation

WGI

light-absorbing particles

Light-absorbing particles (LAP), for example, *black carbon (BC)*, brown carbon and dust, are particles that absorb *solar radiation* and convert it into internal energy, thus raising the particle's temperature and emitting thermal-infrared radiation that is selectively absorbed by the surrounding medium.

LAP affect the energy balance of the *atmosphere* and clouds, and when deposited on snow and ice, they reduce snow/ice albedo, increasing heating and accelerating melting. These particles have a warming effect on *climate*.

semanticClimate annotation

WGI

likelihood

The chance of a specific outcome occurring, where this might be estimated probabilistically.

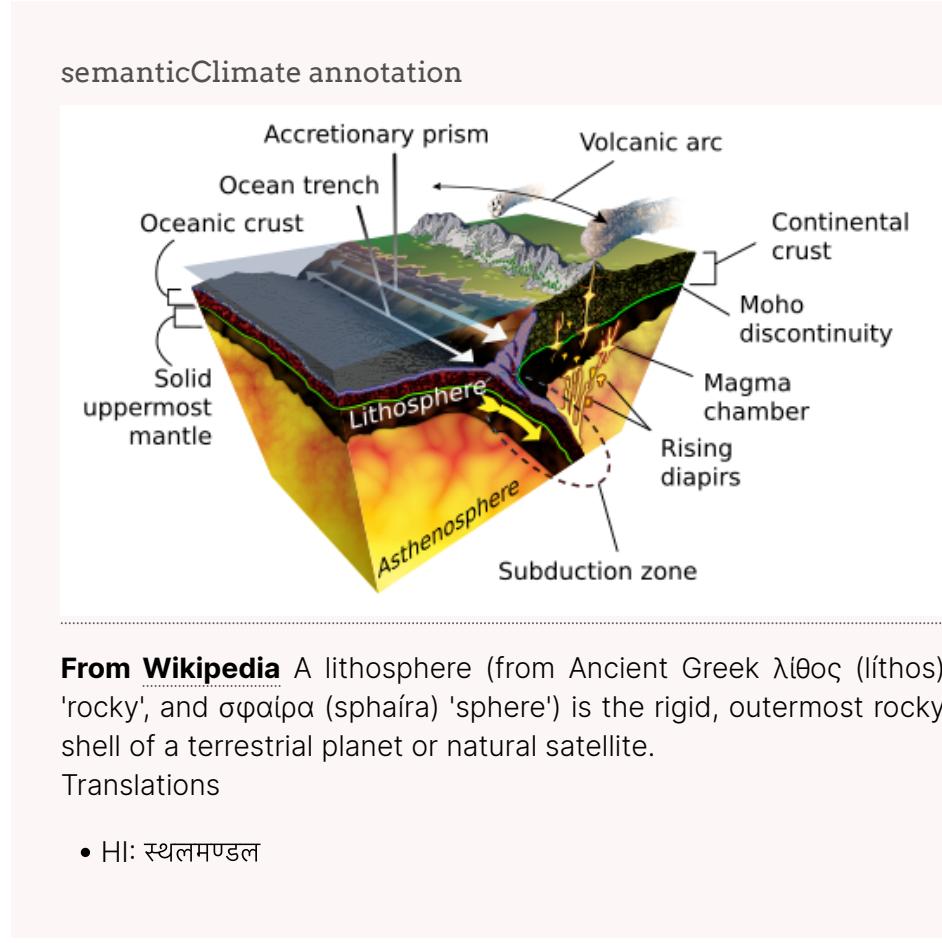
Likelihood is expressed in this report using a standard terminology (Mastrandrea et al., 2010).

semanticClimate annotation

lithosphere

The upper layer of the solid Earth, both continental and oceanic, which comprises all crustal rocks and the cold, mainly elastic part of the uppermost mantle.

Volcanic activity, although part of the *lithosphere*, is not considered as part of the *climate system*, but acts as an *external forcing* factor.



livelihood

The resources used and the activities undertaken in order for people to live.

Livelihoods are usually determined by the entitlements and assets to which people have access. Such assets can be categorised as human, social, natural, physical or financial.

semanticClimate annotation

WGI, WGIII, WGII

local extinction

See *extirpation*

semanticClimate annotation

From Wikipedia Local extinction, also extirpation, is the termination of a species (or other taxon) in a chosen geographic area of study, though it still exists elsewhere. Local extinctions are contrasted with global extinctions.

Translations

- HI: स्थानीय विलुप्ति

WGII

local knowledge

The understandings and skills developed by individuals and populations, specific to the places where they live. Local knowledge informs decision-making about fundamental aspects of life, from day-to-day activities to longer-term actions. This knowledge is a key element of the social and cultural systems which influence observations of and responses to climate change; it also informs governance decisions (UNESCO, 2018).

semanticClimate annotation

Translations

- HI: स्थानीय ज्ञान

WGIII, WGII

LK

local sea level change

Change in sea level relative to a datum (such as present-day mean sea level) at spatial scales smaller than 10 km.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

lock-in

A situation in which the future development of a system, including infrastructure, technologies, investments, institutions and behavioural norms, is determined or constrained ('locked in') by historical developments.

semanticClimate annotation

WGIII,WGII

long-lived climate forcers

[TERM NOT USED - Term name change to "Long-lived greenhouse gases (LLGHGs) in WGI report]

A set of well-mixed greenhouse gases with long atmospheric lifetimes.

This set of compounds includes *carbon dioxide (CO₂)* and *nitrous oxide (N₂O)*, together with some fluorinated gases. They have a warming effect on *climate*. These compounds accumulate in the atmosphere at decadal to centennial timescales, and their effect on climate hence persists for decades to centuries after their emission. On timescales of decades to a century already emitted emissions of long-lived climate forcers can only be abated by greenhouse gas removal (GGR).

semanticClimate annotation

WGIII
LLCFs

long-lived greenhouse gases

A set of well-mixed greenhouse gases with long atmospheric *lifetimes*.

This set of compounds includes 2) carbon dioxide (CO_2) and 20) nitrous oxide (N_2O , together with some halogenated compounds. They have a warming effect on climate. These compounds accumulate in the atmosphere at decadal to centennial time scales, and their effect on climate hence persists for decades to centuries after their emission. On time scales of decades to a century, already emitted emissions of long-lived climate forcers can only be abated by greenhouse gas removal.

semanticClimate annotation

WGI
LLGHGs

Loss and Damage, and losses and damages

Research has taken Loss and Damage (capitalised letters) to refer to political debate under the United Nations Framework Convention on Climate Change (UNFCCC) following the establishment of the Warsaw International Mechanism for Loss and Damage in 2013, which is to 'address loss and damage associated with impacts of climate change, including extreme events and slow onset events, in developing countries that are particularly vulnerable to the adverse effects of climate change.' Lowercase letters (losses and damages) have been taken to refer broadly to harm from (observed) impacts and (projected) risks and can be economic or non-economic (Mechler et al., 2018).

semanticClimate annotation

WGIII,WGII

Low Elevation Coastal Zones

Coastal areas below 10 m of elevation above sea level that are hydrologically connected to the sea.

semanticClimate annotation

WGII
LECZ

low-likelihood, high impact outcomes

Outcomes/events whose probability of occurrence is low or not well known (as in the context of deep uncertainty) but whose potential impacts on society and ecosystems could be high.

To better inform risk assessment and decision-making, such low-likelihood outcomes are considered if they are associated with very large consequences and may therefore constitute material risks, even though those consequences do not necessarily represent the most likely outcome.

semanticClimate annotation

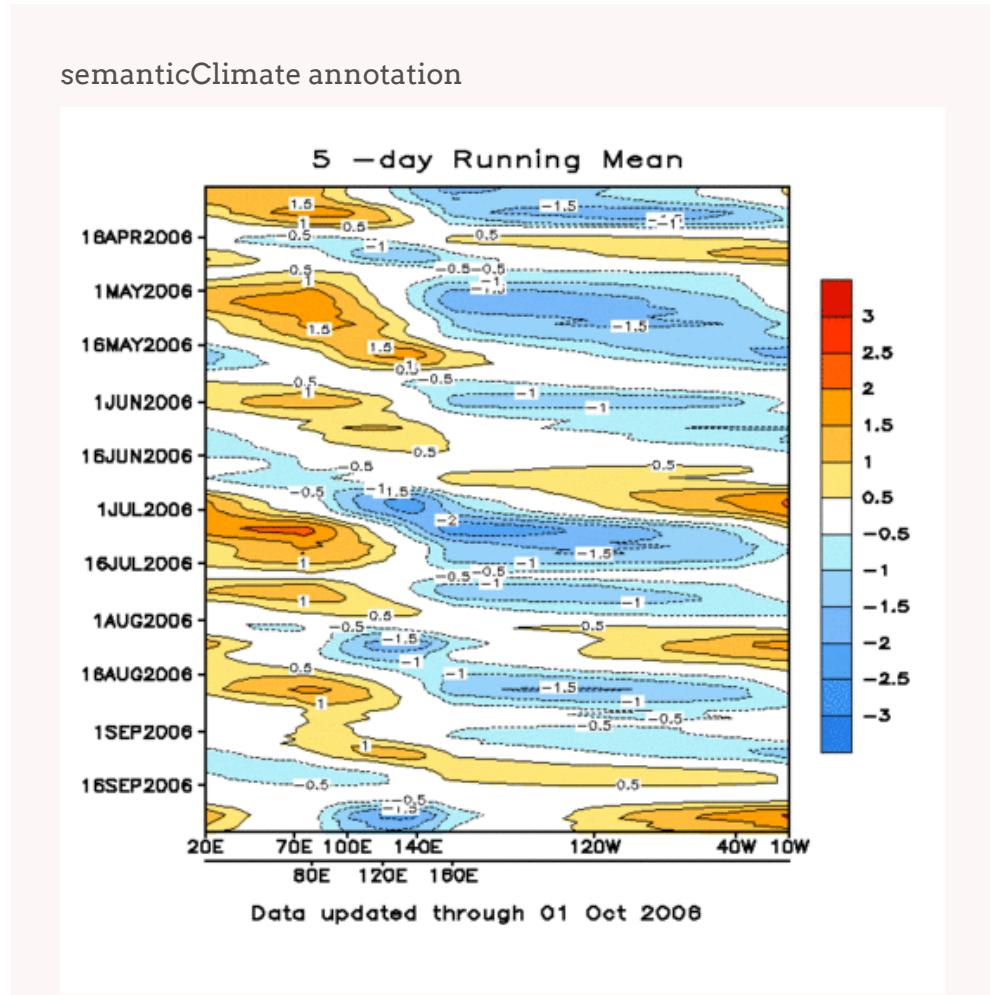
WGI,WGII

M

Madden-Julian Oscillation

The largest mode of tropical atmospheric intra-seasonal variability with typical periods ranging from 20 to 90 days.

The MJO corresponds to planetary-scale disturbances of pressure, wind and deep convection moving predominantly eastward along the equator. As it progresses, the MJO is associated with the temporal alternation of large-scale enhanced and suppressed rainfall, with maximum loading over the Indian and western Pacific oceans, although influences of the MJO can be tracked over the Atlantic/Africa in dynamical fields. See Section AIV.2.8 in Annex IV of the AR6 WGI report.



From Wikipedia The Madden–Julian oscillation (MJO) is the largest element of the intraseasonal (30- to 90-day) variability in the tropical atmosphere.

WGI
MJO

maladaptive actions

Actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas (GHG) emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future.

Most often, maladaptation is an unintended consequence.

semanticClimate annotation

WGIII,WGII,WGI
Maladaptation

malnutrition

Deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients.

The term malnutrition addresses three broad groups of conditions: undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age); micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes and some cancers) (WHO, 2018). Micronutrient deficiencies are sometimes termed 'hidden hunger' to emphasise that people can be malnourished in the sense of deficient without being deficient in calories. Hidden hunger can apply even where people are obese.

semanticClimate annotation

From Wikipedia Malnutrition occurs when an organism gets too few or too many nutrients, resulting in health problems. Specifically, it is "a deficiency, excess, or imbalance of energy, protein and other nutrients" which adversely affects the body's tissues and form.

Translations

- HI: कृपोषण

WGIII,WGII

managed forest

Forests subject to human interventions (notably silvicultural management such as planting, pruning, thinning), timber and fuelwood harvest, protection (fire suppression, insect suppression) and management for amenity values or conservation, with defined geographical boundaries (Ogle et al., 2018).

[Note: For a discussion of the term ‘forest’ in the context of National GHG inventories, see the 2006 IPCC Guidelines for National GHG Inventories (IPCC 2006).]

semanticClimate annotation

Translations

- HI: प्रबंधित वन

WGIII

managed grassland

Grasslands on which human interventions are carried out, such as grazing domestic livestock or hay removal.

semanticClimate annotation

WGIII

managed land

In the context of national *greenhouse gas (GHG)* inventories under the *United Nations Framework Convention on Climate Change (UNFCCC)*, the 2006 IPCC Guidelines for National GHG Inventories (IPCC, 2006) defines managed land ‘where human interventions and practices have been applied to perform production, ecological or social functions’.

IPCC (2006) defines *anthropogenic* GHG emissions and removals in the *LULUCF* sector as all those occurring on ‘managed land’. The key rationale for this approach is that the preponderance of anthropogenic effects

occurs on managed lands. [Note: More details can be found in IPCC 2006 Guidelines for National GHG Inventories, Volume 4, Chapter 1.]

semanticClimate annotation

WGIII

marine-based ice sheet

An *ice sheet* containing a substantial *region* that rests on a bed lying below sea level and whose perimeter is in contact with the ocean.

The best known example is the West Antarctic Ice Sheet.

semanticClimate annotation

WGI

marine cloud brightening

One of several solar radiation modification (SRM) approaches to increase the planetary albedo.

In this approach, it is proposed to inject sea salt aerosols into persistent marine low clouds. This is expected to increase the cloud droplet concentration of these clouds and their reflectivity.

Parent-term

- Solar radiation modification (SRM)

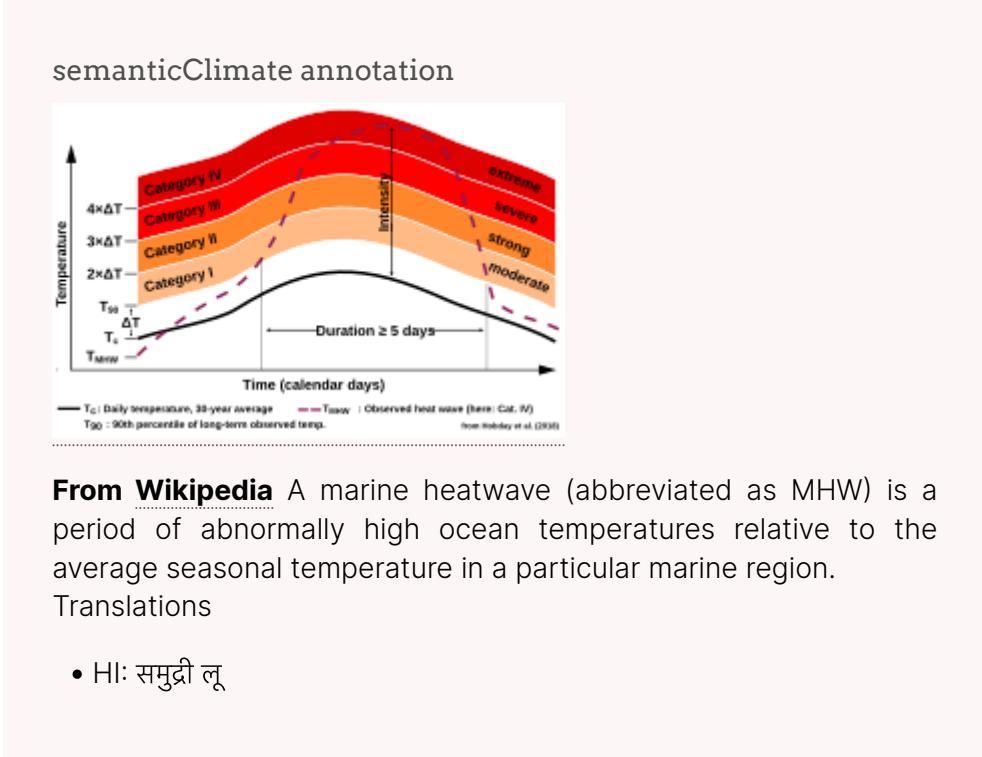
semanticClimate annotation

WGI
MCB

marine heatwave

A period during which water temperature is abnormally warm for the time of the year relative to historical temperatures, with that extreme warmth persisting for days to months.

The phenomenon can manifest in any place in the ocean and at scales of up to thousands of kilometres.

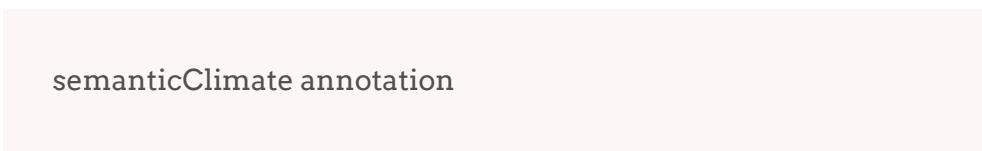


WGI, WGII

marine ice cliff instability

A hypothetical mechanism of an ice cliff failure.

In case a marine-terminated *ice sheet* loses its buttressing *ice shelf*, an ice cliff can be exposed. If the exposed ice cliff is tall enough (about 800 m of the total height, or about 100 m of the above-water part), the stresses at the cliff face exceed the strength of the ice, and the cliff fails structurally in repeated *calving* events.

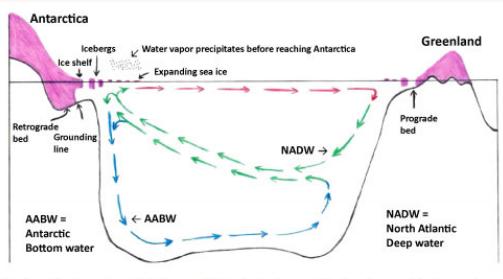


WGI
MICI

marine ice sheet instability

A mechanism of irreversible (on the decadal to centennial time scale) retreat of a *grounding line* for the marine-terminating *glaciers*, in case the glacier bed slopes towards the *ice sheet* interior.

semanticClimate annotation



From Wikipedia Marine ice sheet instability (MISI) describes the potential for ice sheets grounded below sea level to destabilize in a runaway fashion. The mechanism was first proposed in the 1970s by Johannes Weertman and was quickly identified as a means by which even gradual anthropogenic warming could lead to relatively rapid sea level rise.

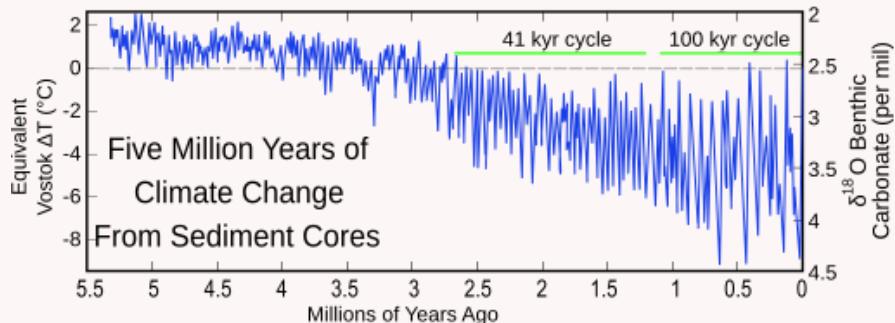
WGI
MISI

marine isotope stage

Geological periods of alternating glacial and interglacial conditions, each typically lasting tens of thousands of years as inferred from the oxygen isotope composition of microfossils from deep sea sediment cores.

MIS numbers increase back in time from the present, which is MIS 1. Even-number MISs coincide with glacial periods, and odd-numbered MISs are interglacials.

semanticClimate annotation



From Wikipedia Marine isotope stages (MIS), marine oxygen-isotope stages, or oxygen isotope stages (OIS), are alternating warm and cool periods in the Earth's paleoclimate, deduced from oxygen isotope data derived from deep sea core samples.

market failure

When private decisions are based on market prices that do not reflect the real scarcity of goods and services but rather reflect market distortions, they do not generate an efficient allocation of resources but cause welfare losses.

A market distortion is any event in which a market reaches a market clearing price that is substantially different from the price that a market would achieve while operating under conditions of perfect competition and state enforcement of legal contracts and the ownership of private property. Examples of factors causing market prices to deviate from real economic scarcity are environmental externalities, public goods, monopoly power, information asymmetry, transaction costs, and non-rational behaviour.

semanticClimate annotation

WGIII

mass balance/budget

Difference between the mass input (*accumulation*) and the mass loss (*ablation*) of an ice body (e.g., a glacier or ice sheet) over a stated time period, which is often a year or a season.

Surface mass balance refers to the difference between surface accumulation and surface ablation.

Sub-terms

- Ablation (of glaciers, ice sheets, or snow cover)
- Accumulation (of glaciers, ice sheets or snow cover)
- Discharge (of ice)

semanticClimate annotation

WGI
of glaciers or ice sheets

material substitution

Replacement of one material (including an energy carrier used as a feedstock) by another, due to scarcity, price, technological change, or because of lower environmental impacts or greenhouse gas emissions.

semanticClimate annotation

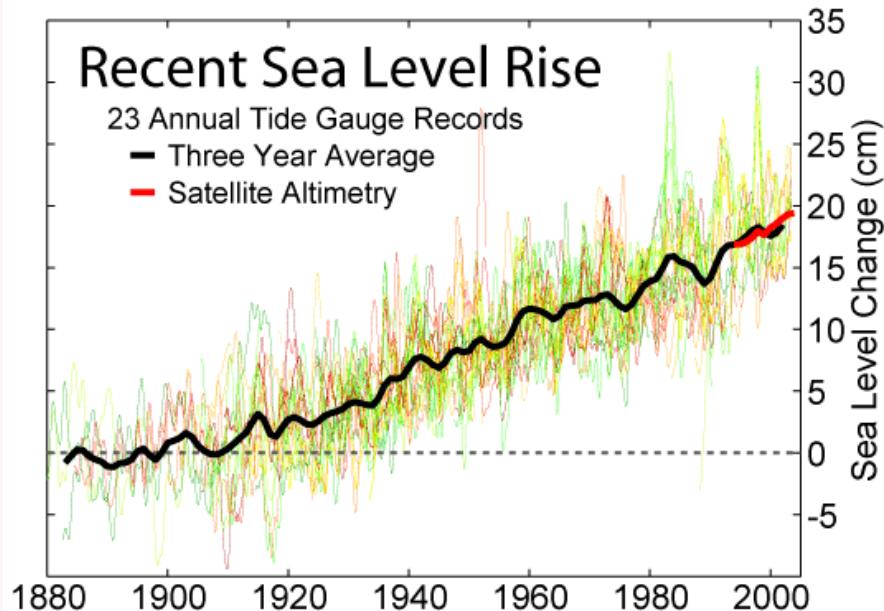
WGIII

mean sea level

The surface level of the ocean at a particular point averaged over an extended period of time such as a month or year.

Mean sea level is often used as a national datum to which heights on land are referred.

semanticClimate annotation



From Wikipedia Mean sea level (MSL, often shortened to sea level) is an average surface level of one or more among Earth's coastal bodies of water from which heights such as elevation may be measured.

Translations

- HI: समुद्र का स्तर

WGII,WGI

measurement

'Processes of data collection over time, providing basic datasets, including associated accuracy and precision, for the range of relevant variables.

Possible data sources are field measurements, field observations, detection through remote sensing and interviews' (UN-REDD, 2009).

Parent-term

- Measurement, Reporting and Verification (MRV)

semanticClimate annotation

WGIII,WGII

Measurement, Reporting and Verification

Measurement

'Processes of data collection over time, providing basic datasets, including associated accuracy and precision, for the range of relevant variables. Possible data sources are field measurements, field observations, detection through remote sensing and interviews' (UN-REDD, 2009).

Reporting

'The process of formal reporting of assessment results to the UNFCCC, according to predetermined formats and according to established standards, especially the Intergovernmental Panel on Climate Change (IPCC) Guidelines and GPG (Good Practice Guidance)' (UN-REDD, 2009).

Verification

'The process of formal verification of reports, for example, the established approach to verify national communications and national inventory reports to the UNFCCC' (UN-REDD, 2009).

Sub-terms

- Measurement
- Reporting
- Verification

semanticClimate annotation

megacity

An urban agglomeration with 10 million inhabitants or more (United Nations, Department of Economic and Social Affairs, Population Division (2019)).

References

- United Nations, Department of Economic and Social Affairs, Population Division (2019). World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420). New York: United Nations.

semanticClimate annotation



From Wikipedia A megacity is a very large city, typically with a population of more than 10 million people.

Translations

- HI: महानगर

WGII,WGI,WGIII

megadrought

A very lengthy and pervasive drought, lasting much longer than normal, usually a decade or more.

Parent-term

- Drought

semanticClimate annotation



From Wikipedia A megadrought is an exceptionally severe drought, lasting for many years and covering a wide area.

WGII

Meltwater Pulse 1A

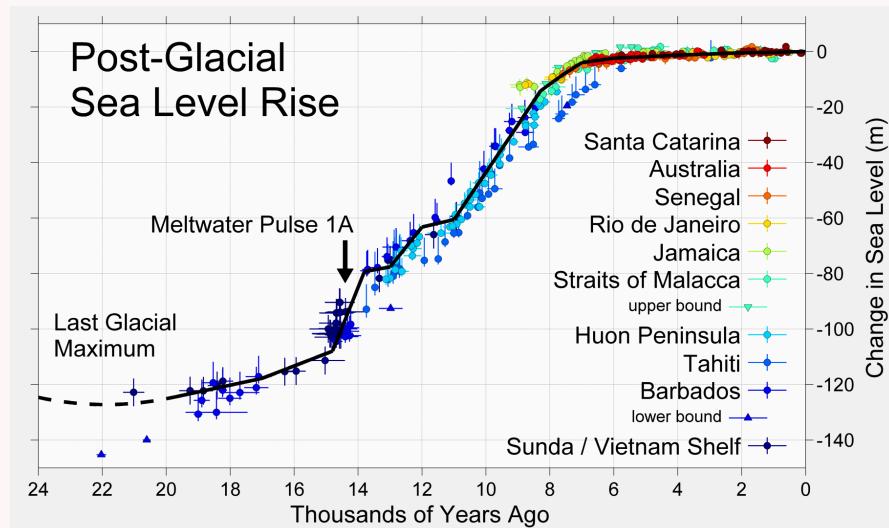
A particular interval of rapid global *sea level rise* between about 14,700 and 14,300 years ago, associated with the end of the last *ice age* and attributed to freshwater flux to the ocean from accelerated melting of *ice sheets* and *glaciers*.

First defined based on oxygen *isotope* data (Duplessy et al., 1981), and later shown to be reflected by high rates of sea level rise (Fairbanks, 1989).

References

- Duplessy, J. C., Delibrias, G., Turon, J. L., Pujol, C., & Duprat, J. (1981) Deglacial warming of the northeastern Atlantic Ocean: correlation with the paleoclimatic evolution of the European continent. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 35, 121-144.
- Fairbanks, R.G. (1989) A 17,000-year glacio-eustatic sea level record: influence of glacial melting rates on the Younger Dryas event and deep-ocean circulation, *Nature* 342/7, 637-642.

semanticClimate annotation



From Wikipedia Meltwater pulse 1A (MWP1a) is the name used by Quaternary geologists, paleoclimatologists, and oceanographers for a period of rapid post-glacial sea level rise, between 13,500 and 14,700 calendar years ago, during which the global sea level rose between 16 meters (52 ft) and 25 meters (82 ft) in about 400–500 years, giving mean rates of roughly 40–60 mm (0.13–0.20 ft)/yr.

WGI
MWP-1A

mental health

The state of well-being in which an individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and is able to contribute to his or her community.

semanticClimate annotation

From Wikipedia Mental health encompasses emotional, psychological, and social well-being, influencing cognition, perception, and behavior. According to World Health Organization (WHO), it is a "state of well-being in which the individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and can contribute to his or her community".

Translations

- HI: मानसिक स्वास्थ्य

WGII

meridional overturning circulation

Meridional (north–south) overturning circulation in the *ocean* quantified by zonal (east–west) sums of mass transports in depth or density layers.

In the North Atlantic, away from the subpolar regions, the MOC (which is in principle an observable quantity) is often identified with the thermohaline circulation (THC), which is a conceptual and incomplete interpretation. The MOC is also driven by wind, and can also include shallower overturning cells such as occur in the upper ocean in the tropics and subtropics, in which warm (light) waters moving poleward are transformed to slightly denser waters and subducted equatorward at deeper levels.

Sub-terms

- Atlantic Meridional Overturning Circulation (AMOC)

semanticClimate annotation

WGI

MOC

meteorological drought

A period with an abnormal precipitation deficit.

Parent-term

- Drought

semanticClimate annotation

Translations

- HI: मौसम संबंधी सूखा

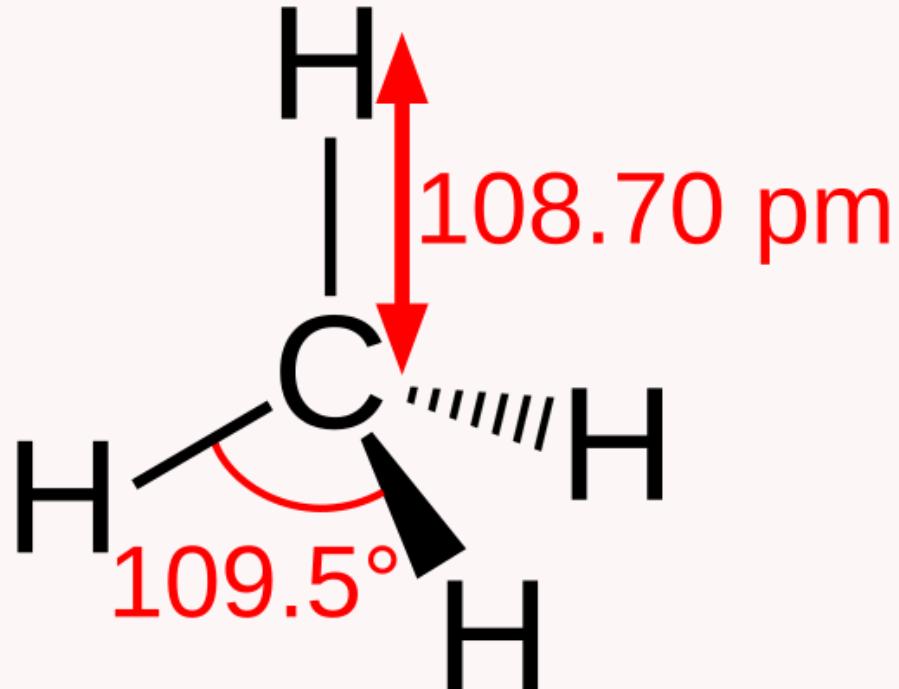
WGI, WGII

methane

The greenhouse gas methane is the major component of natural gas and associated with all hydrocarbon fuels.

Significant anthropogenic emissions also occur as a result of animal husbandry and paddy rice production. Methane is also produced naturally where organic matter decays under anaerobic conditions, such as in wetlands. Under future global warming, there is potential for increased methane emissions from thawing permafrost, wetlands and sub-sea gas hydrates.

semanticClimate annotation



From Wikipedia Methane (US: /'mɛθeɪn/ MEE-thayn, UK: /'mi:θeɪn/ CH4) is a chemical compound with the chemical formula CH_4 (one carbon atom bonded to four hydrogen atoms). It is a group-14 hydride, the simplest alkane, and the main constituent of natural gas.

WGIII,WGII,WGI
CH4

metric

A consistent measurement of a characteristic of an object or activity that is otherwise difficult to quantify.

Within the context of the evaluation of *climate models*, this is a quantitative measure of agreement between a simulated and an observed quantity which can be used to assess the performance of individual models.

semanticClimate annotation

WGII

microclimate

Local climate at or near the Earth's surface.

semanticClimate annotation



From Wikipedia A microclimate (or micro-climate) is a local set of atmospheric conditions that differ from those in the surrounding areas, often slightly but sometimes substantially. The term may refer to areas as small as a few square meters or smaller (for example a garden bed, underneath a rock, or a cave) or as large as many square kilometers.

WGII,WGI

microwave sounding unit

A microwave sounder on U.S.

National Oceanic and Atmospheric Administration (NOAA) polar orbiter satellites that estimates the temperature of thick layers of the *atmosphere* by measuring the thermal emission of oxygen molecules from a complex of emission lines near 60 GHz. A series of nine MSUs began making this

kind of measurement in late 1978. Beginning in mid-1998, a follow-on series of instruments, the Advanced Microwave Sounding Units (AMSUs), began operation.

semanticClimate annotation

From Wikipedia The microwave sounding unit (MSU) was the predecessor to the Advanced Microwave Sounding Unit (AMSU).

WGI
MSU

migrant

Any person who is moving or has moved across an international border or within a State away from his/her habitual place of residence, regardless of (1) the person's legal status; (2) whether the movement is voluntary or involuntary; (3) what the causes for the movement are; or (4) what the length of the stay is (IOM, 2018).

semanticClimate annotation

WGIII,WGII

migration

Movement of a person or a group of persons, either across an international border, or within a State.

It is a population movement, encompassing any kind of movement of people, whatever its length, composition and causes; it includes migration of refugees, displaced persons, economic migrants, and persons moving for other purposes, including family reunification (IOM, 2018).

semanticClimate annotation

WGIII,WGII
of humans

Mineralization/Remineralization

The conversion of an element from its organic form to an inorganic form as a result of microbial decomposition.

In nitrogen mineralization, organic nitrogen from decaying plant and animal residues (proteins, nucleic acids, amino sugars and urea) is converted to ammonia (NH_3) and ammonium (NH_4^+) by biological activity.

semanticClimate annotation

From Wikipedia Biomineralization, also written biominerallisation, is the process by which living organisms produce minerals, often resulting in hardened or stiffened mineralized tissues.

WGI

mitigation

A human intervention to reduce emissions or enhance the sinks of greenhouse gases.

semanticClimate annotation

WGI,WGIII,WGII
of climate change

mitigation measures

In climate policy, mitigation measures are technologies, processes or practices that contribute to mitigation, for example, renewable energy technologies, waste minimisation processes, and public transport commuting practices.

semanticClimate annotation

WGII,WGIII

mitigation option

A technology or practice that reduces greenhouse gas (GHG) emissions or enhances sinks.

semanticClimate annotation

WGIII,WGII

mitigation pathways

A temporal evolution of a set of *mitigation scenario* features, such as greenhouse gas (GHG) emissions and socio-economic development.

Parent-term

- Pathways

semanticClimate annotation

WGIII,WGI

mitigation potential

The quantity of net greenhouse gas emission reductions that can be achieved by a given mitigation option relative to specified emission baselines.

[Note: Net greenhouse gas emission reduction is the sum of reduced emissions and/or enhanced sinks.]

Sub-terms

- Biogeophysical potential
- Economic potential
- Technical potential

semanticClimate annotation

WGIII,WGI

mitigation scenario

A plausible description of the future that describes how the (studied) system responds to the implementation of *mitigation* policies and measures.

Parent-term

- Scenario

semanticClimate annotation

WGI, WGIII, WGI

model initialization

A *climate prediction* typically proceeds by integrating a *climate model* forward in time from an initial state that is intended to reflect the actual state of the *climate system*.

Available observations of the climate system are assimilated into the model. Initialization is a complex process that is limited by available observations, observational errors and, depending on the procedure used, may be affected by *uncertainty* in the history of *climate forcing*. The initial conditions will contain errors that grow as the forecast progresses, thereby limiting the time period over which the forecast will be useful.

semanticClimate annotation

WGI

model spread

The range or spread in results from *climate models*, such as those assembled for Coupled Model Intercomparison Project Phase 6 (CMIP6).

Does not necessarily provide an exhaustive and formal estimate of the *uncertainty* in *feedbacks*, *forcing* or *projections* even when expressed numerically, for example, by computing a standard deviation of the models' responses. In order to quantify uncertainty, information from observations, physical constraints and expert judgement must be combined, using a statistical framework.

semanticClimate annotation

WGI

models

Structured imitations of a system's attributes and mechanisms to mimic the appearance or functioning of systems, for example, the climate, the economy of a country, or a crop.

Mathematical models assemble (many) variables and relations (often in a computer code) to simulate system functioning and performance for variations in parameters and inputs.

semanticClimate annotation

WGII

modes of climate variability

Recurrent space-time structures of *natural variability* of the *climate system* with intrinsic spatial patterns, seasonality and time scales.

Modes can arise through the dynamical characteristics of the atmospheric circulation but also through coupling between the ocean and the *atmosphere*, with some interactions with land surfaces and *sea ice*. Many modes of variability are driven by internal climate processes and are a critical potential source of climate predictability on sub-seasonal to decadal time scales. See Annex IV of the AR6 WGI report.

semanticClimate annotation

WGI

mole fraction or mixing ratio

Mole fraction, or mixing ratio, is the ratio of the number of moles of a constituent in a given volume to the total number of moles of all constituents in that volume.

It is usually reported for dry air. Typical values for *well-mixed greenhouse gases* are in the order of $\mu\text{mol mol}^{-1}$ (parts per million: ppm), nmol mol^{-1} (parts per billion: ppb), and fmol mol^{-1} (parts per trillion: ppt). Mole fraction differs from volume mixing ratio, often expressed in ppmv, etc., by the corrections for non-ideality of gases. This correction is significant relative to measurement precision for many *greenhouse gases* (Schwartz and Warneck, 1995).

semanticClimate annotation

From Wikipedia In chemistry, the mole fraction or molar fraction, also called mole proportion or molar proportion, is a quantity defined as the ratio between the amount of a constituent substance, n_i (expressed in unit of moles, symbol mol), and the

total amount of all constituents in a mixture, n_{tot} (also expressed in moles)
Translations

- HI: અણુ-અંશ

WGI

monitoring and evaluation

Mechanisms put in place to respectively monitor and evaluate efforts to reduce greenhouse gas emissions and/or adapt to the impacts of climate change with the aim of systematically identifying, characterising and assessing progress over time.

semanticClimate annotation

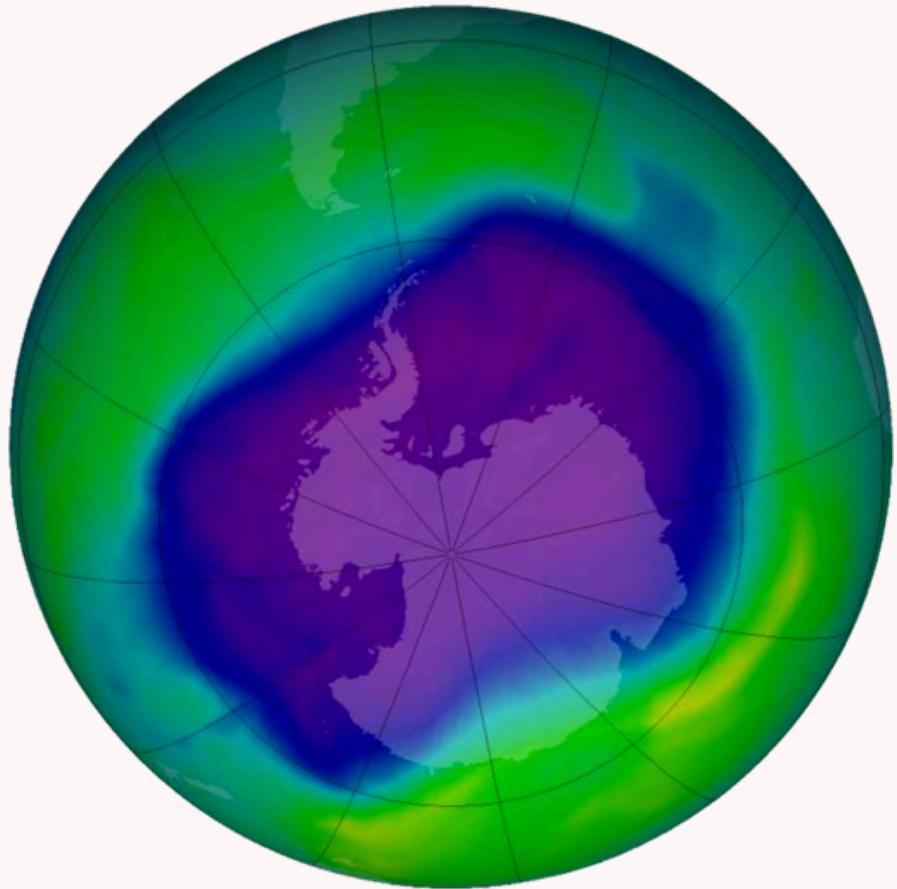
WGII
M&E

Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer was adopted in Montreal in 1987, and subsequently adjusted and amended (including London (1990), Copenhagen (1992), Vienna (1995), Montreal (1997), Beijing (1999) and Kigali(2016)).

It controls the consumption and production of chlorine- and bromine-containing chemicals that destroy stratospheric ozone (O_3 , such as chlorofluorocarbons (CFCs), methyl chloroform, carbon tetrachloride and many others. Since the Kigali Amendment in 2016, hydrofluorocarbons (HFCs), which were used as alternatives to ozone-depleting substances (ODSs), have been targeted for a phase-down due to their climate effect as greenhouse gases (GHGs).

semanticClimate annotation



From Wikipedia The Montreal Protocol is an international treaty designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion.

Translations

- HI: मॉन्ट्रियल प्रोटोकॉल

WGI

mountains

A mountain is a landform formed through plate tectonics that rises above its surrounding area, characterised by verticality and ruggedness such as gentle or steep sloping sides, sharp or rounded ridges and a high point called a peak or a summit.

Mountain regions consist of mountains and mountain ranges as defined by ruggedness, intermontane valleys, plateaus and tablelands, and hills and hilly forelands, together forming a complex terrain.

To delineate mountain regions, a combination of terrain characteristics is used, such as elevation above sea level, steepness of slope and relative relief or local elevational range.

Three mountain characterisations using different combinations of the above criteria applied to digital elevation models have been developed to arrive at mountain area statistics, described and analysed in detail by Sayre et al. (2018), namely K1 (Kapos et al., 2000), K2 (Körner et al., 2011) and K3 (Karagulle et al., 2017).

semanticClimate annotation



From Wikipedia A mountain is an elevated portion of the Earth's crust, generally with steep sides that show significant exposed bedrock.

Translations

- HI: पर्वत

WGII

multi-level governance

The dispersion of governance across multiple levels of jurisdiction and decision-making, including, global, regional, national and local, as well as trans-regional and trans-national levels.

Parent-term

- Governance

semanticClimate annotation

From Wikipedia Multi-level (or multilevel) governance is a term used to describe the way power is spread vertically between many levels of government and horizontally across multiple quasi-government and non-governmental organizations and actors.

WGIII,WGII

N

narrative

Qualitative descriptions of plausible future world evolutions, describing the characteristics, general logic and developments underlying a particular quantitative set of scenarios.

Narratives are also referred to in the literature as "storylines".

semanticClimate annotation

WGI,WGIII,WGII

native species

Indigenous species of animals or plants that naturally occur in a given region or ecosystem.

Under climate change, many species colonise new areas where they may become native over time (following IPBES 2019).

semanticClimate annotation

From Wikipedia In biogeography, a native species is indigenous to a given region or ecosystem if its presence in that region is the result of only local natural evolution (though often popularised as "with no human intervention") during history.

Translations

- HI: देशी प्रजाति

WGII

natural systems

The dynamic physical, physicochemical and biological components of the Earth system that would operate independently of human activities.

semanticClimate annotation

Translations

- HI: प्राकृतिक प्रणालियाँ

WGII,WGI

natural variability

Natural variability refers to climatic fluctuations that occur without any human influence, that is *internal variability* combined with the response to external natural factors such as volcanic eruptions, changes in *solar activity* and, on longer time-scales, orbital effects and plate tectonics.

Parent-term

- Climate variability

semanticClimate annotation

Translations

- HI: प्राकृतिक परिवर्तनशीलता

WGI

nature-based solutions

Actions to protect, sustainably manage and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.

(IUCN, 2016)

References

- IUCN (2016). Defining Nature-based Solutions. World Conservation Congress. WCC-2016-Res-069-EN

semanticClimate annotation

WGII,WGIII
NbS

nature's contributions to people

All the contributions, both positive and negative, of living nature (i.e., diversity of organisms, *ecosystems*, and their associated ecological and evolutionary processes) to the quality of life for people.

Beneficial contributions from nature include such things as food provision, water purification, flood control, and artistic inspiration, whereas detrimental contributions include disease transmission and predation that damages people or their assets. Many NCP may be perceived as benefits or detriments depending on the cultural, temporal or spatial context (Díaz et al, 2018).

References

- Diaz, S., U. Pascual, M. Stenseke, B. Martin-Lopez, R.T. Watson, Z. Molnar, R. Hill, K.M.A. Chain, I.A. Baste, K.A. Brauman, S. Polasky, A. Church, M. Lonsdale, A. Larigauderie, P.W. Leadley, A.P.E. van Oudenhoven, F. van der Plaat, M. Schroter, S. Lavorel, Y. Aumeeruddy-Thomas, E. Bukvareva, K. Davies, S. Demissew, G. Erpul, P. Failler, C.A. Guerra, C.L. Hewitt, H. Keune, S. Lindley, Y. Shirayama, 2018: Assessing nature's contribution to people. Science, 359(6373), 270-272.

semanticClimate annotation

WGIII
NCP

near-surface permafrost

Permafrost within about 3–4 m of the ground surface.

The depth is not precise, but describes what commonly is highly relevant for people and *ecosystems*. Deeper permafrost is often progressively less ice-rich and responds more slowly to warming than near-surface permafrost. The presence or absence of near-surface permafrost is not the only significant metric of permafrost change, and deeper permafrost may persist when near-surface permafrost is absent.

Parent-term

- Permafrost

semanticClimate annotation

WGI

negative greenhouse gas emissions

Removal of greenhouse gases (GHGs) from the *atmosphere* by deliberate human activities, that is, in addition to the removal that would occur via natural carbon cycle or atmospheric chemistry processes.

semanticClimate annotation

WGI

net negative greenhouse gas emissions

A situation of net negative greenhouse gas emissions is achieved when metric-weighted anthropogenic greenhouse gas (GHG) removals exceed metric-weighted anthropogenic GHG emissions.

Where multiple GHG are involved, the quantification of net emissions depends on the metric chosen to compare emissions of different gases (such as *global warming potential*, global temperature change potential, and others, as well as the chosen time horizon).

semanticClimate annotation

WGI,WGIII

net primary production

The amount of carbon fixed by photosynthesis minus the amount lost by respiration over a specified time period.

Parent-term

- Primary production

semanticClimate annotation

WGI, WGII
NPP

Net zero CO2 emissions

Condition in which anthropogenic carbon dioxide (CO2) emissions are balanced by anthropogenic CO2 removals over a specified period.

Note: Carbon neutrality and net zero CO2 emissions are overlapping concepts.

The concepts can be applied at global or sub-global scales (e.g., regional, national and sub-national). At a global scale, the terms carbon neutrality and net zero CO2 emissions are equivalent. At sub-global scales, net zero CO2 emissions is generally applied to emissions and removals under direct control or territorial responsibility of the reporting entity, while carbon neutrality generally includes emissions and removals within and beyond the direct control or territorial responsibility of the reporting entity. Accounting rules specified by GHG programmes or schemes can have a significant influence on the quantification of relevant CO2 emissions and removals.

semanticClimate annotation

WGIII, WGI, WGII

net zero greenhouse gas emissions

Condition in which metric-weighted anthropogenic greenhouse gas (GHG) emissions are balanced by metric-weighted anthropogenic GHG removals over a specified period.

The quantification of net zero GHG emissions depends on the GHG emission metric chosen to compare emissions and removals of different gases, as well as the time horizon chosen for that metric.

[Note 1: Greenhouse gas neutrality and net zero GHG emissions are overlapping concepts. The concept of net zero GHG emissions can be applied at global or sub-global scales (e.g., regional, national and sub-national). At a global scale, the terms GHG neutrality and net zero GHG emissions are equivalent. At sub-global scales, net zero GHG emissions is generally applied to emissions and removals under direct control or

territorial responsibility of the reporting entity, while GHG neutrality generally includes anthropogenic emissions and anthropogenic removals within and beyond the direct control or territorial responsibility of the reporting entity. Accounting rules specified by GHG programmes or schemes can have a significant influence on the quantification of relevant emissions and removals.

Note 2: Under the Paris Rulebook (Decision 18/CMA.1, annex, paragraph 37), parties have agreed to use GWP100 values from the IPCC AR5 or GWP100 values from a subsequent IPCC Assessment Report to report aggregate emissions and removals of GHGs. In addition, parties may use other metrics to report supplemental information on aggregate emissions and removals of GHGs.]

semanticClimate annotation

WGIII,WGI

New Urban Agenda

The New Urban Agenda was adopted at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador, on 20 October 2016.

It was endorsed by the United Nations General Assembly at its 68th plenary meeting of the 71st session on 23 December 2016.

semanticClimate annotation

WGII

nitrogen deposition

Nitrogen deposition is defined as the nitrogen transferred from the atmosphere to the Earth's surface by the processes of wet deposition and dry deposition.

semanticClimate annotation

Translations

- HI: নাইট্রোজন জমাব

WGI

nitrous oxide

The main anthropogenic source of N₂O, a greenhouse gas (GHG), is agriculture (soil and animal manure management), but important contributions also come from sewage treatment, *fossil fuel* combustion, and chemical industrial processes.

N₂O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical *forests*.

semanticClimate annotation

WGIII,WGI
N₂O

Non-CO₂ emissions and radiative forcing

Non-CO₂ emissions included in this report are all *anthropogenic emissions* other than *2)carbon dioxide (CO* that result in *radiative forcing*.

These include *short-lived climate forcers*, such as *methane (CH₄)*, some *fluorinated gases*, *ozone (O₃) precursors*, *aerosols* or *aerosol precursors*, such as *black carbon* and *sulphur dioxide*, respectively, as well as *long-lived greenhouse gases*, such as *nitrous oxide (N₂O)* or other *fluorinated gases*. The radiative forcing associated with non-CO₂ emissions and changes in surface *albedo* (e.g., resulting from land-use change) is referred to as non-CO₂ radiative forcing.

semanticClimate annotation

WGI

non-climatic driver

An agent or process outside the climate system that influences a human or natural system.

Parent-term

- *Driver*

semanticClimate annotation

WGII
Non-climate driver

non-communicable diseases

Non-communicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors.

The main types of NCDs are cardiovascular diseases (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes (WHO).

semanticClimate annotation

WGII

non-linearity

A process is called non-linear when there is no simple proportional relation between cause and effect.

The climate system contains many such non-linear processes, resulting in a system with potentially very complex behaviour. Such complexity may lead to abrupt climate change and tipping points.

semanticClimate annotation

WGI

non-methane volatile organic compounds

NMVOCS are major contributors (together with NOX and CO) to the formation of photochemical oxidants such as ozone.

semanticClimate annotation

WGI
NMVOCS

non-overshoot pathways

Pathways that stay below a specified concentration, forcing, or global warming level during a specified period of time (e.g., until 2100).

Parent-term

- Pathways

semanticClimate annotation

WGIII,WGI

North American monsoon

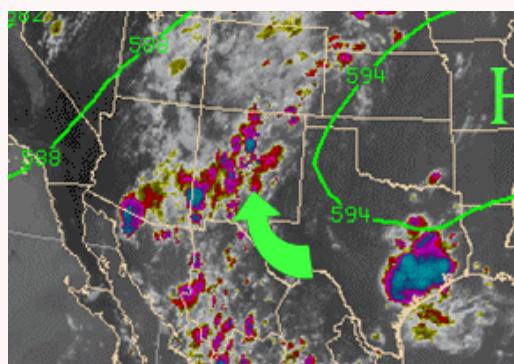
The North American monsoon (NAmerM) is a regional-scale atmospheric circulation system with increases in summer precipitation over northwestern Mexico and southwest United States.

The monsoonal characteristics of the region include a pronounced annual maximum of precipitation in boreal summer (June–July–August) accompanied by a surface low pressure system and an upper-level anticyclone, although seasonal reversal of the surface winds is primarily limited to the northern Gulf of California. Further details on how NAmerM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

semanticClimate annotation



From Wikipedia The North American monsoon, variously known as the Southwest monsoon, the Mexican monsoon, the New Mexican monsoon, or the Arizona monsoon is a pattern of pronounced

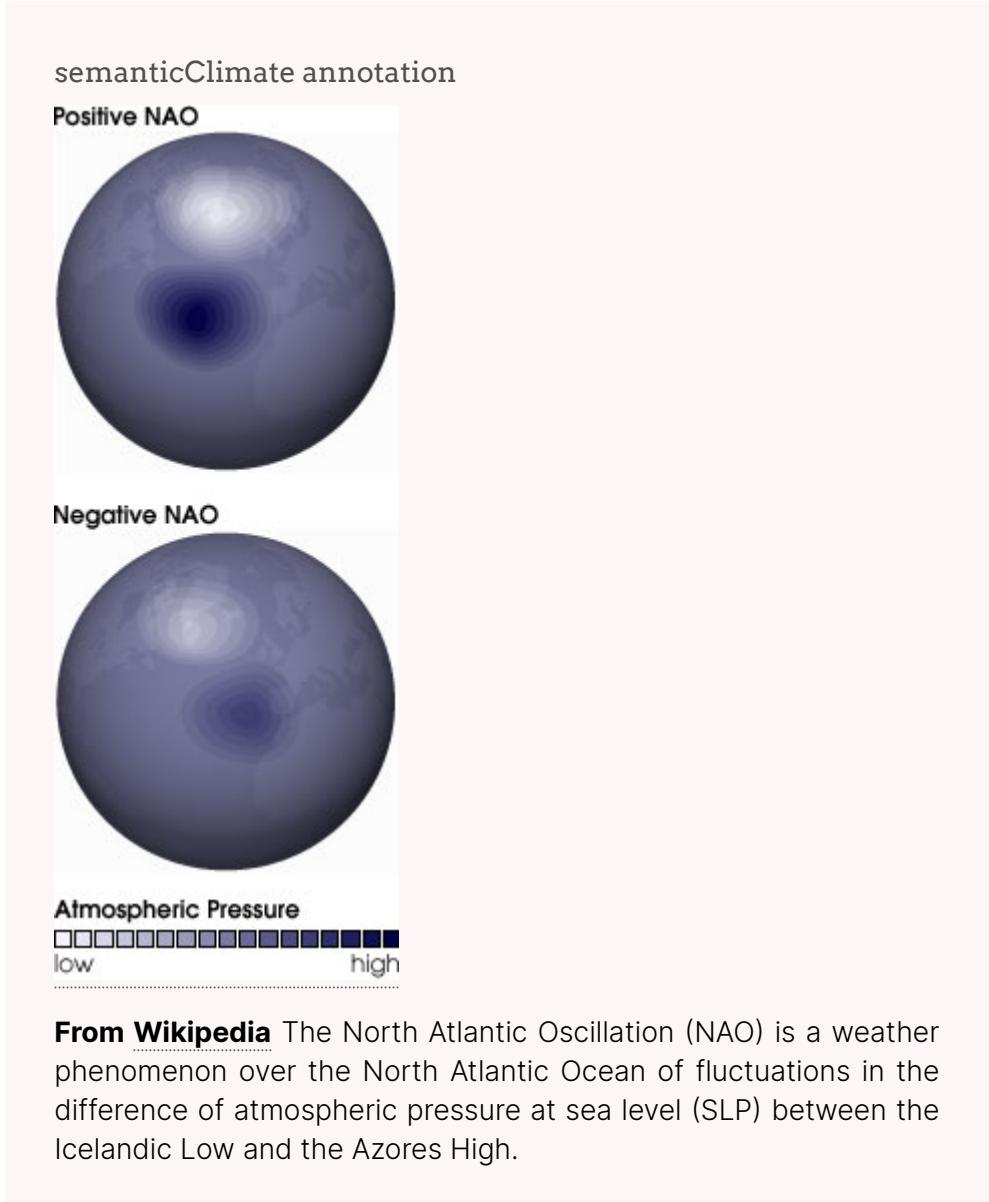
increase in thunderstorms and rainfall over large areas of the southwestern United States and northwestern Mexico, centered roughly on the Rio Grande Valley, and typically occurring between June and mid-September.

WGI
NAmerM

North Atlantic Oscillation

The leading mode of large-scale atmospheric variability in the North Atlantic basin characterized by alternating (see-saw) variations in sea level pressure or geopotential height between the Azores High in the subtropics and the Icelandic Low in the mid- to high latitudes, with some northward extension deep into the Arctic.

It is associated with fluctuations in the strength and latitudinal position of the main westerly winds across a vast North Atlantic–Europe domain, and thus with fluctuations in the embedded extratropical cyclones and associated frontal systems leading to strong *teleconnection* over the entire North Atlantic adjacent continents. The positive and negative phases of the NAO show similar characteristics described for the *Northern Annular Mode (NAM)*. See Section AIV.2.1 in Annex IV of the AR6 WGI report.



WGI
NAO

Northern Annular Mode

A see-saw latitudinal fluctuation in Northern Hemisphere sea-level pressure or geopotential height between the Arctic and the mid-latitudes.

The NAM has some links with the *stratospheric polar vortex* and is related to the fluctuation in strength and latitude of the mean westerlies. Its variance is maximum in winter and its pattern has a strong regional expression in the North Atlantic being strongly correlated with the *North Atlantic Oscillation* index. The NAM is also known as the Arctic Oscillation (AO). In its positive phase, the NAM is characterized by anomalously low pressure over the Arctic and high pressure over the mid-latitudes/subtropics, with a strengthening of the zonally averaged westerly winds on their polar flank that confines colder air across the

Arctic. The negative NAM phase is characterized by a more distorted wind pattern and jet meanders that increase storminess in the mid-latitude regions. See Section AIV.2.1 in Annex IV of the AR6 WGI report.

Parent-term

- Annular modes

semanticClimate annotation

WGI
NAM

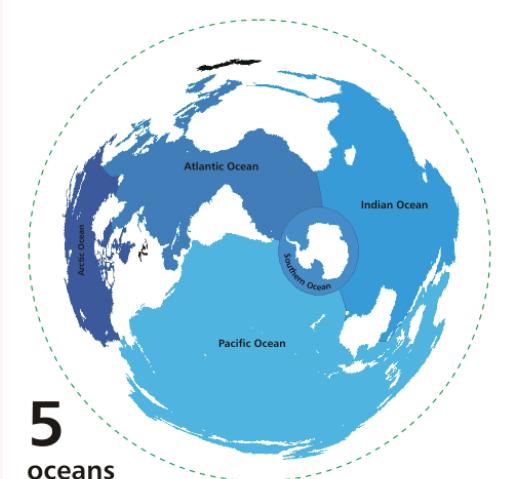
O

ocean

The interconnected body of saline water that covers 71% of the Earth's surface, contains 97% of the Earth's water and provides 99% of the Earth's biologically habitable space.

It includes the Arctic, Atlantic, Indian, Pacific and Southern Oceans, as well as their marginal seas and coastal waters.

semanticClimate annotation



5 oceans

From Wikipedia The ocean (also known as the sea or the world ocean) is a body of salt water that covers approximately 70.8% of the Earth and contains 97% of Earth's water.

Translations

- HI: महासागर

WGII,WGI

ocean acidification

A reduction in the *pH* of the *ocean*, accompanied by other chemical changes (primarily in the levels of carbonate and bicarbonate ions), over

an extended period, typically decades or longer, which is caused primarily by *uptake of carbon dioxide (CO₂)* from the *atmosphere*, but can also be caused by other chemical additions or subtractions from the ocean.

Anthropogenic OA refers to the component of pH reduction that is caused by human activity (IPCC, 2011, p. 37).

semanticClimate annotation



From Wikipedia Ocean acidification is the decrease in the pH of the Earth's ocean. Between 1950 and 2020, the average pH of the ocean surface fell from approximately 8.15 to 8.05.

Translations

- HI: महासागर अम्लीकरण

WGII,WGI
OA

Ocean alkalization/Ocean alkalinity enhancement

A proposed *carbon dioxide removal (CDR)* method that involves deposition of alkaline minerals or their dissociation products at the ocean surface.

This increases surface total alkalinity, and may thus increase ocean *2)carbon dioxide (CO₂) uptake* and ameliorate surface ocean acidification.

semanticClimate annotation

WGI,WGIII

ocean carbon cycle

The ocean *carbon cycle* is the set of processes that exchange carbon between various pools within the ocean, as well as between the *atmosphere*, Earth's interior, *cryosphere*, and the sea-floor.

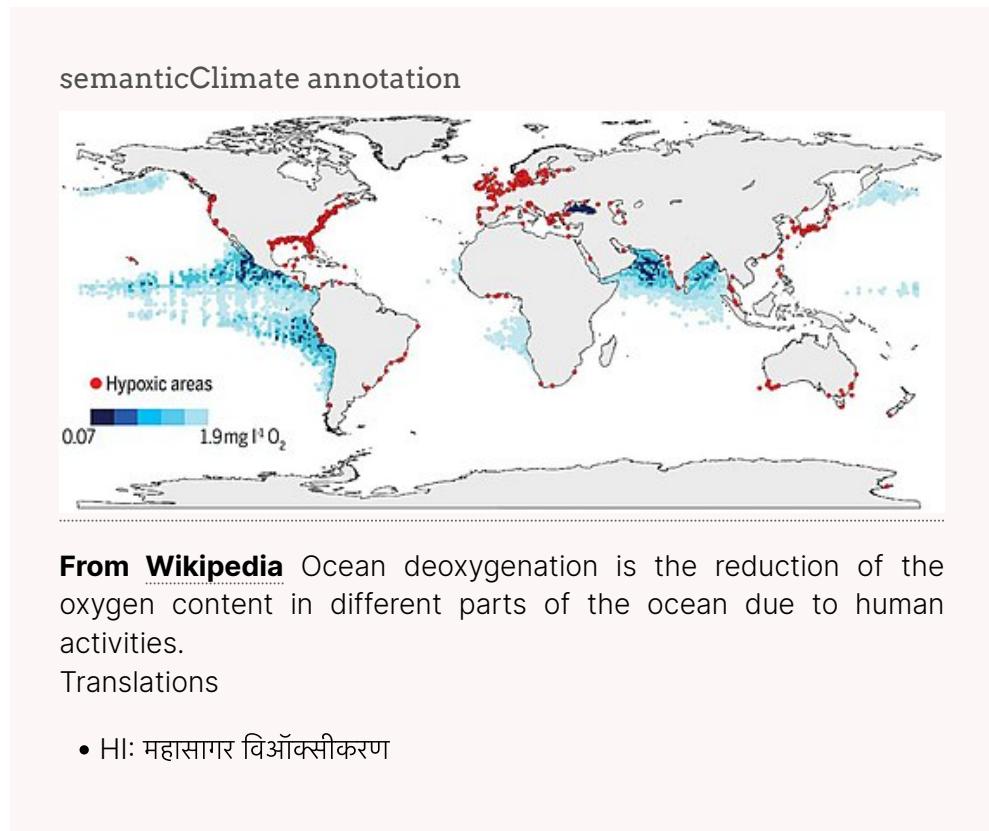
semanticClimate annotation

WGI

ocean deoxygenation

The loss of oxygen in the ocean.

It results from ocean warming, which reduces oxygen solubility and increases oxygen consumption and stratification, thereby reducing the mixing of oxygen into the ocean interior. Deoxygenation can also be exacerbated by the addition of excess nutrients in the coastal zone.



From Wikipedia Ocean deoxygenation is the reduction of the oxygen content in different parts of the ocean due to human activities.

Translations

- HI: महासागर विअॉक्सीकरण

WGI, WGII

ocean dynamic sea level change

Change in mean sea level relative to the geoid associated with circulation and density-driven changes in the ocean.

Ocean dynamic sea level change is regionally varying but by definition has a zero global mean and conventionally is inverse-barometer corrected (i.e., the effect of the hydrostatic depression of the sea surface by atmospheric pressure changes is removed). Changes in ocean currents occur due to variations in heating and cooling, variability in winds and changes in seasonally to annually averaged air temperature and humidity.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

ocean fertilisation

A proposed carbon dioxide removal (CDR) method that relies on the deliberate increase of nutrient supply to the near-surface ocean with the aim of sequestering additional CO₂ from the atmosphere through biological production. Methods include direct addition of micro-nutrients or macro-nutrients. To be successful, the additional carbon needs to reach the deep ocean where it has the potential to be sequestered on climatically relevant time scales.

semanticClimate annotation

WGI,WGIII

ocean heat uptake efficiency

This is a measure (W m⁻² °C⁻¹) of the rate at which heat storage by the global ocean increases as global surface temperature rises.

It is a useful parameter for *climate change* simulations in which the *radiative forcing* is changing monotonically, when it can be compared with the *climate feedback parameter* to gauge the relative importance of radiative response and ocean heat *uptake* in determining the rate of *climate change*. It can be estimated from such an experiment as the ratio of the rate of increase of ocean heat content to the surface temperature change.

semanticClimate annotation

WGI

ocean stratification

Process of forming of layers of ocean water with different properties such as salinity, density and temperature that act as barriers to water mixing.

The strengthening of near-surface stratification generally results in warmer surface waters, decreased oxygen levels in deeper water and intensification of ocean acidification (OA) in the upper ocean.

semanticClimate annotation

From Wikipedia Ocean stratification is the natural separation of an ocean's water into horizontal layers by density, which is generally stable because warm water floats on top of cold water, and heating is mostly from the sun, which reinforces that arrangement.

Translations

- HI: महासागर स्तरीकरण

WGI,WGII

offset

The reduction, avoidance or removal of a unit of greenhouse gas (GHG) emissions by one entity, purchased by another entity to counterbalance a unit of GHG emissions by that other entity.

Offsets are commonly subject to rules and environmental integrity criteria intended to ensure that offsets achieve their stated mitigation outcome. Relevant criteria include, but are not limited to, the avoidance of double counting and leakage, use of appropriate baselines, additionality, and permanence or measures to address impermanence.

semanticClimate annotation

WGIII
in climate policy

orbital forcing

Orbital *forcing* is the influence of slow, systematic and predictable changes in orbital parameters (eccentricity, obliquity and precession of the equinox) on incoming solar radiation (*insolation*), especially its latitudinal and seasonal distribution.

It is an *external forcing* and a key driver of *glacial-interglacial cycles*.

semanticClimate annotation

From Wikipedia Orbital forcing is the effect on climate of slow changes in the tilt of the Earth's axis and shape of the Earth's orbit around the Sun (see Milankovitch cycles).

WGI

organic aerosol

Component of the *aerosol* that consists of organic compounds, mainly carbon, hydrogen, oxygen and lesser amounts of other elements.

semanticClimate annotation

WGI

organic farming

An agricultural production system that aims to utilise natural processes and cycles to limit off-farm and notably synthetic inputs, while also aiming to enhance agroecosystems and society.

Organic farming is often legally defined and governed by standards, typically guided by principles outlined by the International Federation of Organic Agriculture Movements (IFOAM – Organics International) (IFOAM – Organics International, 2014).

References

- IFOAM, 2019: The IFOAM norms for Organic Production and Processing. International Federation of Organic Agriculture Movements., <https://www.ifoam.bio/sites/default/files/2020-09/IFOAM%20Norms%20July%202014%20Edits%202019.pdf>.

semanticClimate annotation



From Wikipedia Organic farming, also known as ecological farming or biological farming, is an agricultural system that uses fertilizers of organic origin such as compost manure, green manure, and bone meal and places emphasis on techniques such as crop rotation and companion planting.

Translations

- HI: जैविक खेती

WGIII

outbreak

Often used synonymously with 'epidemic', usually to indicate localised as opposed to generalised epidemics (WHO, 2020).

semanticClimate annotation

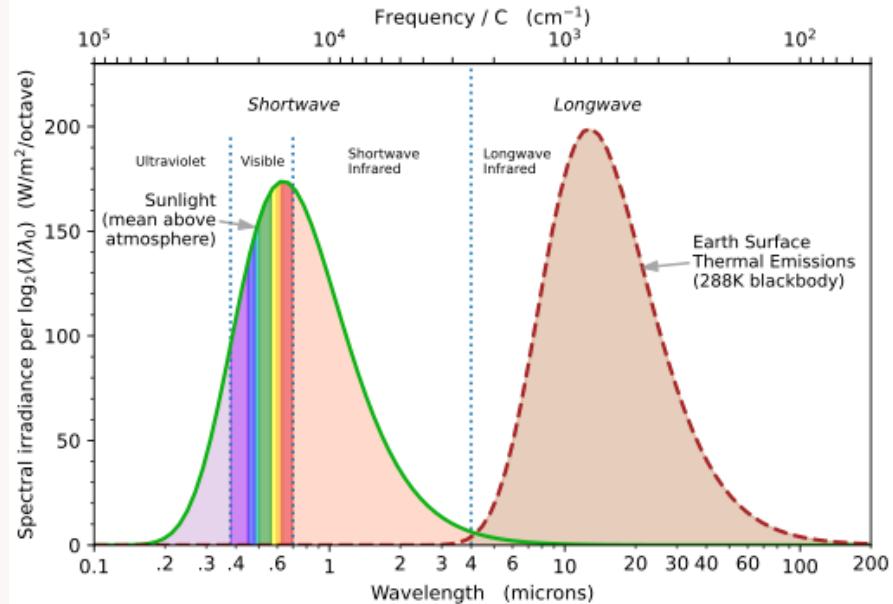
WGII

outgoing longwave radiation

Net outgoing radiation in the infrared part of the spectrum at the top of the atmosphere.

semanticClimate annotation

Spectrum of Sunlight & Earth Surface Thermal Emissions



From Wikipedia In climate science, longwave radiation (LWR) is electromagnetic thermal radiation emitted by Earth's surface, atmosphere, and clouds. It may also be referred to as terrestrial radiation.

WGI

outlet glacier

A *glacier*, usually between rock walls, that is part of, and drains, an *ice sheet*.

Parent-term

- Glacier

semanticClimate annotation

WGI

overshoot pathways

Pathways that first exceed a specified concentration, forcing, or global warming level, and then return to or below that level again before the end of a specified period of time (e.g., before 2100).

Sometimes the magnitude and likelihood of the overshoot are also characterised. The overshoot duration can vary from one pathway to the next, but in most overshoot pathways in the literature and referred to as overshoot pathways in the AR6, the overshoot occurs over a period of at least one decade and up to several decades.

Parent-term

- Pathways

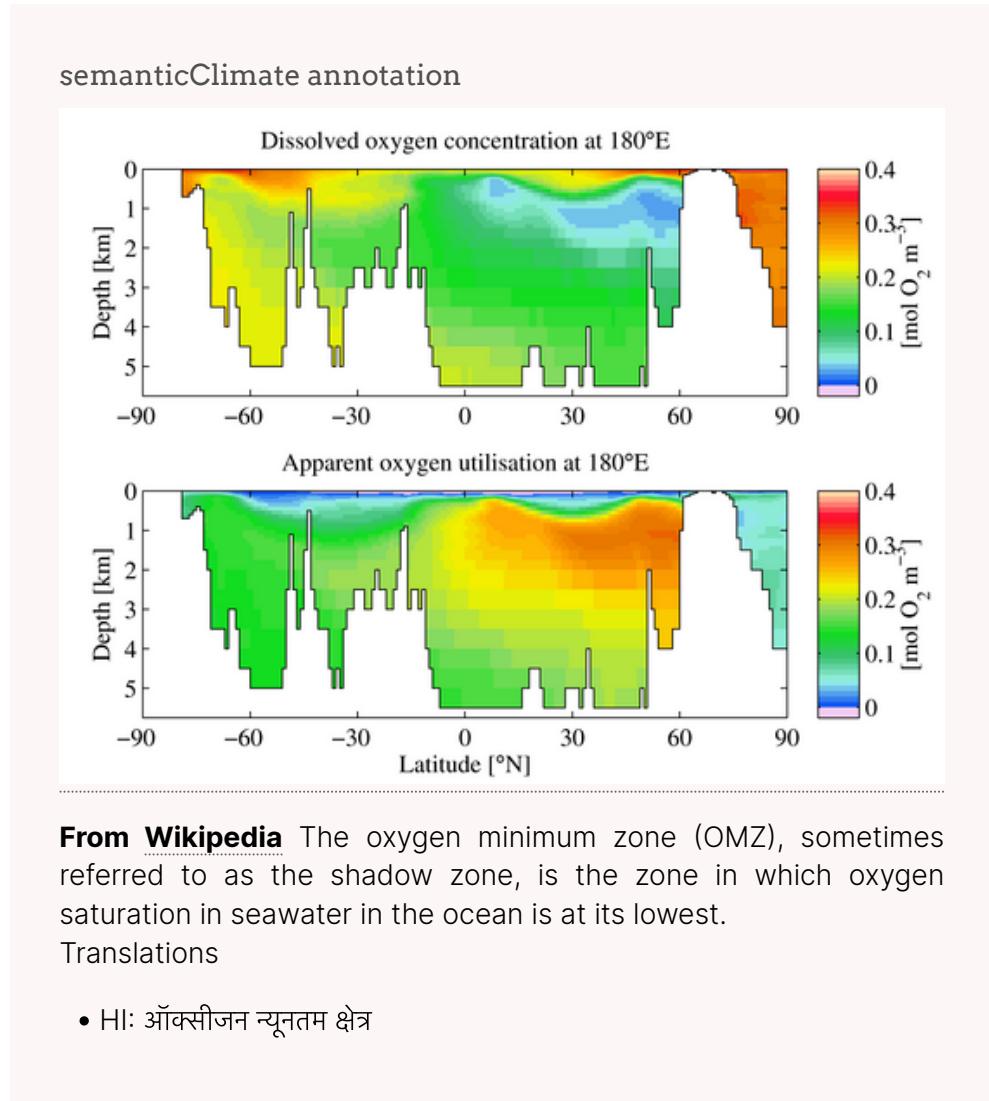
semanticClimate annotation

WGIII,WGI

oxygen minimum zone

The midwater layer (200–1000 m) in the open ocean in which oxygen saturation is the lowest in the ocean.

The degree of oxygen depletion depends on the largely bacterial consumption of organic matter, and the distribution of the OMZs is influenced by large-scale ocean circulation. In coastal oceans, OMZs extend to the shelves and may also affect benthic ecosystems.



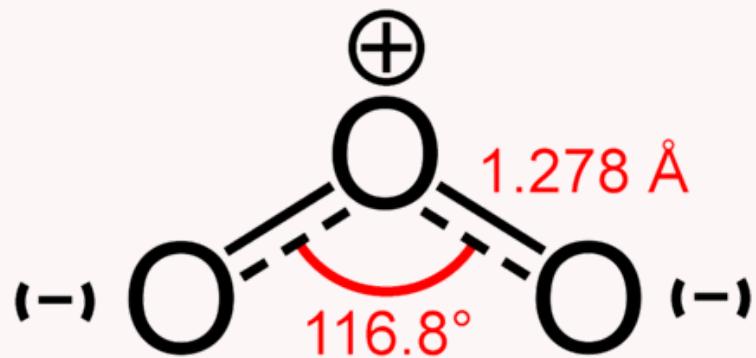
WGI, WGI
OMZ

ozone

The triatomic form of oxygen, and a gaseous *atmospheric* constituent.

In the troposphere, O₃ is created both naturally and by photochemical reactions involving gases resulting from human activities (e.g., smog). Tropospheric O₃ acts as a *greenhouse gas (GHG)*. In the stratosphere, O₃ is created by the interaction between solar ultraviolet radiation and molecular oxygen (O₂). Stratospheric O₃ plays a dominant role in the stratospheric radiative balance. Its concentration is highest in the ozone layer.

semanticClimate annotation



From Wikipedia Ozone (/ˈoʊzən/) (or trioxygen) is an inorganic molecule with the chemical formula O₃. It is a pale blue gas with a distinctively pungent smell. It is an allotrope of oxygen that is much less stable than the diatomic allotrope O₂, breaking down in the lower atmosphere to O₂ (dioxygen).

WGIII,WGII,WGI
O₃

ozone-depleting substances

Man-made gases that destroy ozone once they reach the ozone layer in the stratosphere.

Ozone-depleting substances include: chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), hydrobromofluorocarbons (HBFCs), halons, methyl bromide, carbon tetrachloride and methyl chloroform. They are used as refrigerants in commercial, home and vehicle air conditioners and refrigerators, foam blowing agents, components in electrical equipment, industrial solvents, solvents for cleaning (including dry cleaning), aerosol spray propellants and fumigants.

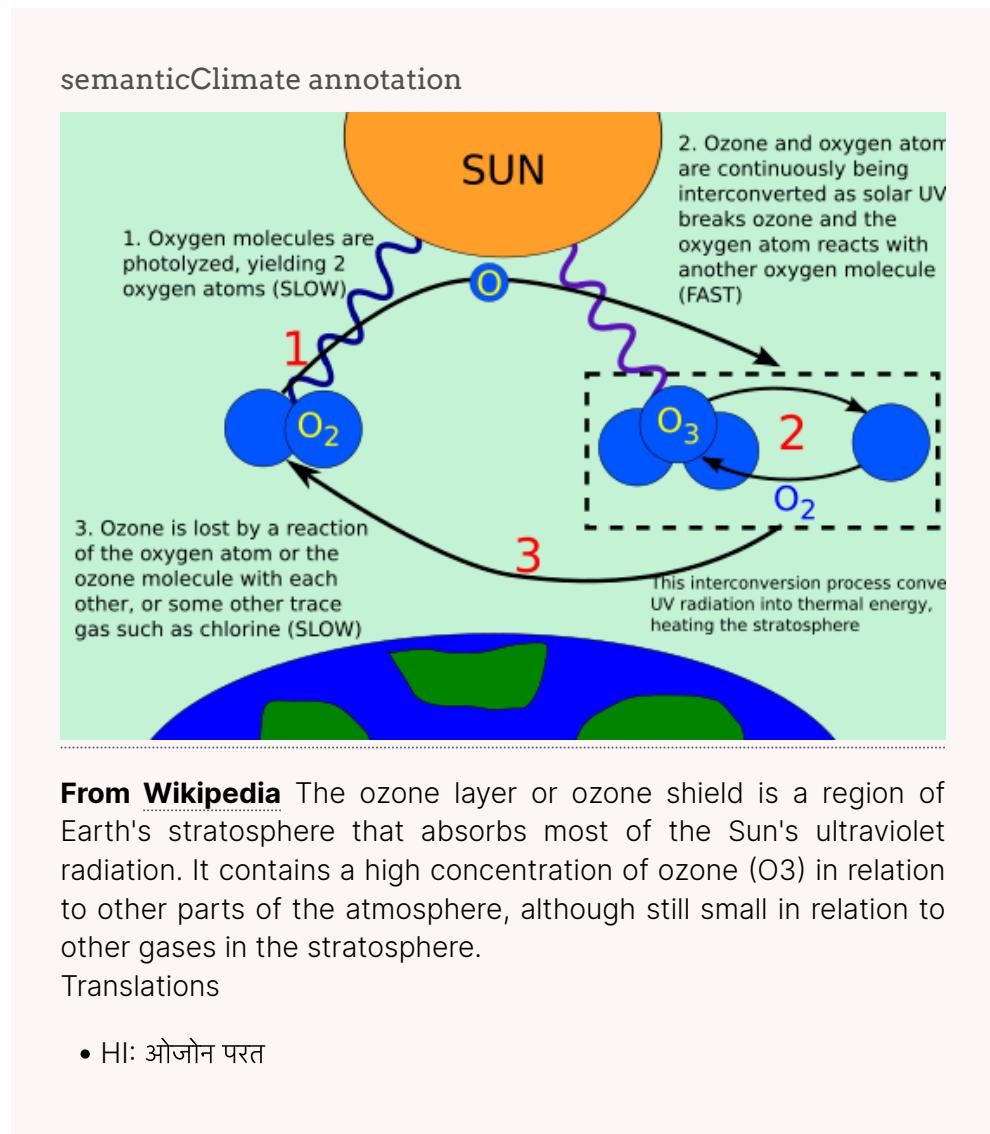
semanticClimate annotation

WGI
ODSs

ozone layer

A layer of Earth's stratosphere that absorbs most of the Sun's ultraviolet radiation.

It contains high concentrations of 3)ozone (O₃) in relation to other parts of the atmosphere, although still small in relation to other gases in the stratosphere. The ozone layer contains less than 10 parts per million of ozone, while the average ozone concentration in Earth's atmosphere as a whole is about 0.3 parts per million. The ozone layer is mainly found in the lower portion of the stratosphere, from approximately 15 to 35 kilometres (9.3 to 21.7 miles) above Earth, although its thickness varies seasonally and geographically.



WGI

ozonesonde

An ozonesonde is a radiosonde measuring 3)ozone (O₃) concentrations.

The radiosonde is usually carried on a weather balloon and transmits measured quantities by radio to a ground-based receiver.

semanticClimate annotation

WGI

P

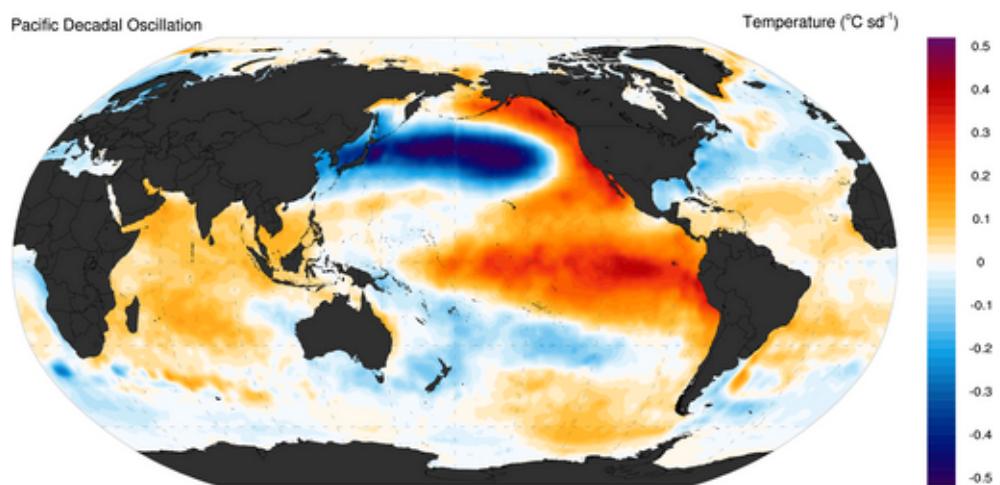
Pacific Decadal Oscillation

The leading mode of variability obtained from decomposition in empirical orthogonal function of *sea surface temperature* over the North Pacific north of 20°N, and characterized by a strong decadal component.

The positive phase of the PDO features a dipole of sea surface temperature anomalies in the North Pacific, with a cold lobe near the centre of the basin and extending westward along the Kuroshio, encircled by warmer conditions along the coast of North America and in the subtropics. A positive PDO is accompanied by an intensified Aleutian Low and an associated cyclonic circulation enhancement leading to *teleconnections* over the continents adjacent to the North Pacific. In the AR6 WGI report, the PDO is encapsulated within the definition and description of *Pacific Decadal Variability (PDV)*. See also Section AIV.2.6 in Annex IV of the AR6 WGI report.

Parent-term

- Pacific Decadal Variability (PDV)



From Wikipedia During a "warm", or "positive", phase, the west Pacific becomes cooler and part of the eastern ocean warms; during a "cool", or "negative", phase, the opposite pattern occurs.

semanticClimate annotation

Translations

- HI: प्रशांत दशकीय दोलन

WGI
PDO

Pacific Decadal Variability

Coupled decadal-to-inter-decadal variability of the atmospheric circulation and underlying ocean that is typically observed over the entire Pacific Basin beyond the *El Niño–Southern Oscillation (ENSO)* time scale.

In the AR6 WGI report, PDV encapsulates the *Pacific Decadal Oscillation (PDO)*, the South Pacific Decadal Oscillation (SPDO), tropical Pacific decadal variability (also called decadal ENSO), and the Inter-decadal Pacific Oscillation (IPO). Typically, the positive phase of the PDV is characterized by anomalously high *sea surface temperatures* in the central-eastern tropical Pacific that extend to the extratropical North and South Pacific along the American coasts, encircled to the west by cold sea surface anomalies in the mid-latitude North and South Pacific. The negative phase is accompanied by sea surface temperature anomalies of the opposite sign. Those sea surface temperature anomalies are linked to anomalies in atmospheric and oceanic circulation throughout the whole Pacific Basin. The PDV is associated with decadal modulations in the relative occurrence of El Niño and La Niña. See Section AIV.2.6 in Annex IV of the AR6 WGI report.

Sub-terms

- *Inter-decadal Pacific Oscillation (IPO)*
- *Pacific Decadal Oscillation (PDO)*

semanticClimate annotation

Translations

- HI: प्रशांत दशकीय परिवर्तनशीलता

WGI
PDV

Pacific-North American pattern

An atmospheric large-scale wave pattern featuring a sequence of tropospheric high and low pressure anomalies stretching from the subtropical west Pacific to the east coast of North America.

semanticClimate annotation

[from Wikipedia](#)

WGI

PNA

Palaeocene-Eocene Thermal Maximum

The PETM is a transient event that occurred between 55.9 and 55.7 million years ago.

Continental positions at this time were somewhat different to present due to tectonic plate movements. Geological data indicate that the PETM was characterised by a warming (*global mean surface temperature* rose to about 4°C–7 °C warmer than the preceding mean state), and an increase in atmospheric CO₂ (from about 900 to about 2000 ppmv). In addition, ocean *pH* and oxygen content decreased; many deep-sea species went extinct and tropical *coral reefs* diminished.

References

- Rohl et al. 10.1029/2007gc001784

semanticClimate annotation

WGI

PETM

paleoclimate

Climate during periods prior to the development of measuring instruments, including historic and geologic time, for which only *proxy* climate records are available.

semanticClimate annotation

Translations

- HI: पुराजलवायु

WGI

pandemic

A worldwide outbreak of a disease in humans in numbers clearly in excess of normal (WHO, 2020).

semanticClimate annotation



From Wikipedia A pandemic (/pæn'demɪk/ pan-DEM-ik) is an epidemic of an infectious disease that has spread across a large region, for instance multiple continents or worldwide, affecting a substantial number of individuals.

Translations

- HI: विश्वमारी
- BE: জাতিসারী

WGII

pareto optimum

A state in which no one's welfare can be increased without reducing someone else's welfare.

<

[Wikipedia](#)

semanticClimate annotation

WGIII

participatory governance

A governance system that enables direct public engagement in decision-making using a variety of techniques, for example, referenda, community deliberation, citizen juries or participatory budgeting.

The approach can be applied in formal and informal institutional contexts from national to local, but is usually associated with devolved decision making (Fung and Wright, 2003; Sarmiento and Tilly, 2018).

Parent-term

- Governance

semanticClimate annotation

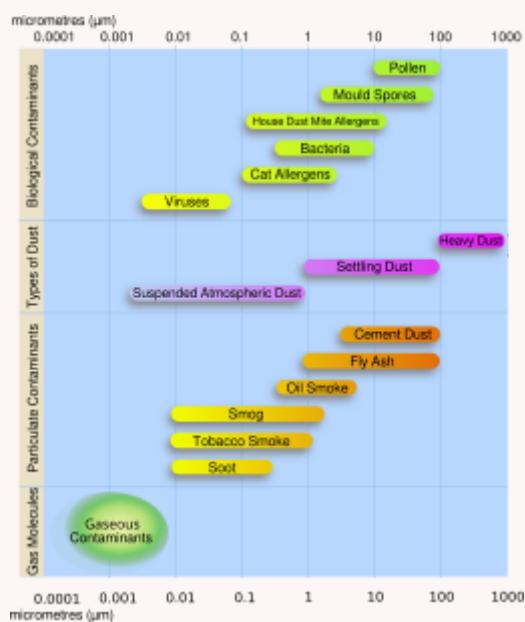
WGIII

particulate matter

Atmospheric *aerosols* involved in air pollution issues.

Of greatest concern for health are particles of aerodynamic diameter less than or equal to 10 micrometers, usually designated as PM10 and particles of diameter less than or equal to 2.5 micrometers, usually designated as PM2.5.

semanticClimate annotation



From Wikipedia Particulates or atmospheric particulate matter (see below for other names) are microscopic particles of solid or liquid matter suspended in the air.

Translations

- HI: कणिका तत्व

WGII, WGIII
PM

pasture

Area covered with grass or other plants used or suitable for grazing of livestock; grassland.

semanticClimate annotation



From Wikipedia Pasture lands in the narrow sense are enclosed tracts of farmland, grazed by domesticated livestock, such as horses, cattle, sheep, or swine. The vegetation of tended pasture, forage, consists mainly of grasses, with an interspersion of legumes and other forbs (non-grass herbaceous plants).

Translations

- HI: চারণভূমি
- BE: চারণভূমি

WGII

path dependence

The generic situation where decisions, events, or outcomes at one point in time constrain adaptation, mitigation or other actions or options at a later point in time.

semanticClimate annotation

WGII, WGIII

pathways

The temporal evolution of natural and/or human systems towards a future state.

Pathway concepts range from sets of quantitative and qualitative *scenarios* or *narratives* of potential futures to solution-oriented decision-making processes to achieve desirable societal goals. Pathway approaches typically focus on biophysical, techno-economic, and/or socio-behavioural trajectories and involve various dynamics, goals, and actors across different scales.

Sub-terms

- [1.5°C pathway](#)
- [Adaptation pathways](#)
- [Climate resilient development pathways \(CRDPs\)](#)
- [Climate-resilient pathways](#)
- [Development pathways](#)
- [Emission pathways](#)
- [Mitigation pathways](#)
- [Non-overshoot pathways](#)
- [Overshoot pathways](#)
- [Representative Concentration Pathways \(RCPs\)](#)
- [Shared socio-economic pathways \(SSPs\)](#)
- [Sustainable development pathways \(SDPs\)](#)
- [Transformation pathways](#)

semanticClimate annotation

WGIII,WGII,WGI

pattern scaling

Techniques used to represent the spatial variations in *climate* at a given increase in *global mean surface air temperature (GSAT)* are referred to as 'pattern scaling'.

semanticClimate annotation

WGI

peat

Soft, porous or compressed, sedentary deposit of which a substantial portion is partly decomposed plant material with high water content in the natural state (up to about 90%).

semanticClimate annotation



From Wikipedia Peat (/pi:t/) is an accumulation of partially decayed vegetation or organic matter. It is unique to natural areas called peatlands, bogs, mires, moors, or muskegs.

Translations

- HI: ພີຕ

WGI,WGII

peatlands

Peatlands are wetland ecosystems where soils are dominated by peat.

In peatlands, net primary production exceeds organic matter decomposition as a result of waterlogged conditions, which leads to the accumulation of peat.

semanticClimate annotation



From Wikipedia A peatland is a type of wetland whose soils consist of organic matter from decaying plants, forming layers of peat. Peatlands arise because of incomplete decomposition of organic matter, usually litter from vegetation, due to water-logging and subsequent anoxia. Like coral reefs, peatlands are unusual landforms that derive mostly from biological rather than physical processes, and can take on characteristic shapes and surface patterning.

Translations

- BE:পিটল্যান্ড

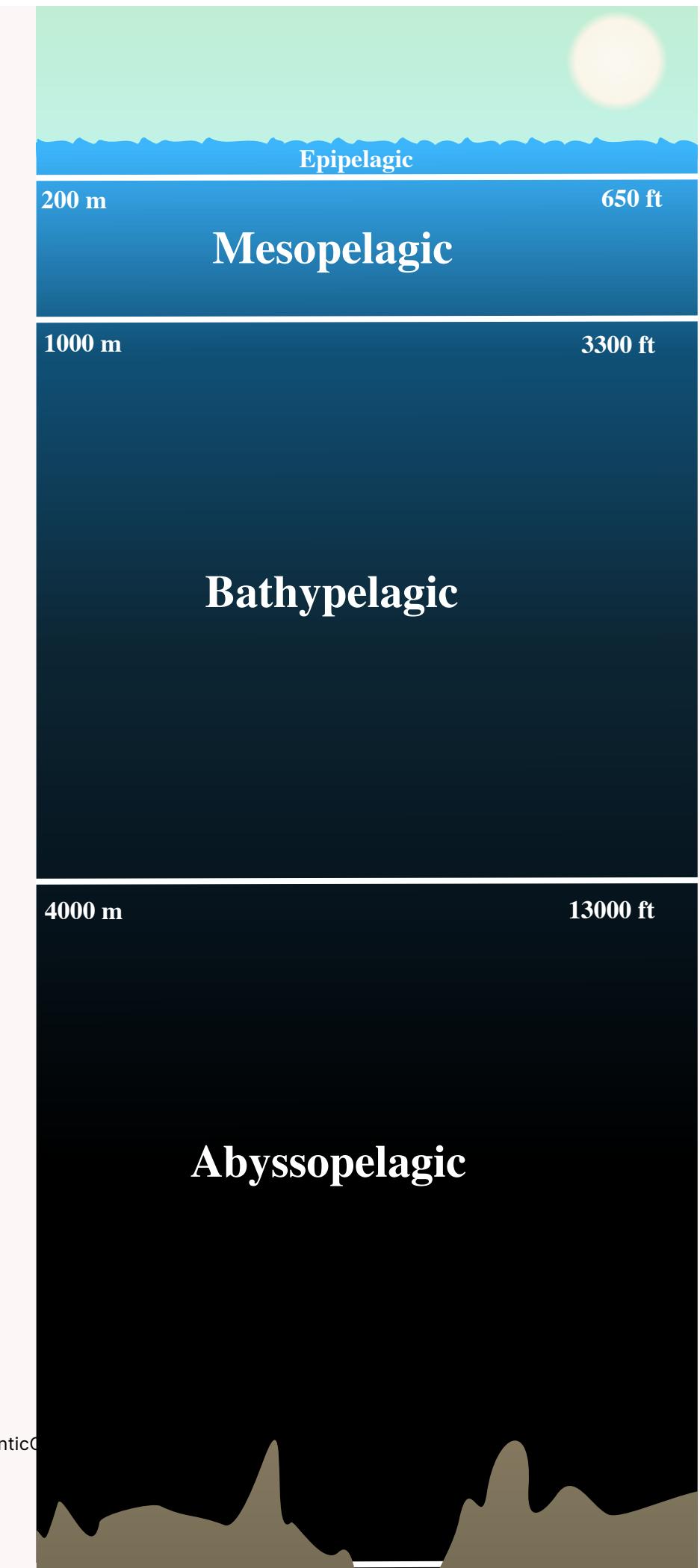
WGII,WGI

pelagic

The pelagic zone consists of the entire water column of the open ocean.

It is subdivided into the epipelagic zone (<200 m, the uppermost part of the ocean that receives enough sunlight to allow photosynthesis), the mesopelagic zone (200–1000 m depth) and the bathypelagic zone (>1000 m depth). The term ‘pelagic’ can also refer to organisms that live in the pelagic zone.

semanticClimate annotation



From Wikipedia The pelagic zone can be thought of as an imaginary cylinder or water column between the surface of the sea and the bottom. Conditions in the water column change with depth: pressure increases; temperature and light decrease; salinity, oxygen, micronutrients (such as iron, magnesium and calcium) all change.

Translations

- HI: পিলাজিক জৌন
- BE:পেলাজিক

WGII

pelagos

Organisms large and small living in the pelagic zones.

Includes plankton (small) and nekton (free swimming, large). See *Benthos*.

semanticClimate annotation

WGII

percentile

A partition value in a population distribution that a given percentage of the data values are below or equal to.

The 50th percentile corresponds to the median of the population. Percentiles are often used to estimate the extremes of a distribution. For example, the 90th (10th) percentile may be used to refer to the threshold for the upper (lower) extremes.

semanticClimate annotation

From Wikipedia In statistics, a k-th percentile, also known as percentile score or centile, is a score below which a given percentage k of scores in its frequency distribution falls ("exclusive" definition) or a score at or below which a given percentage falls ("inclusive" definition).

Translations

- HI: প্রতিথত্তা

peri-urban areas

Dynamic transition zones that have intense interaction between rural and urban economies, activities, households, and lifestyles.

Neither fully rural or urban (Seto et al., 2010).

References

- based on Seto, K.C., Sánchez-Rodríguez, R., Fragkias, M. 2010: The New Geography of Contemporary Urbanization and the Environment; in:
 Annual Review of Environment and Resources 2010 35:1, 167-194

semanticClimate annotation



From Wikipedia Peri-urbanisation relates to the processes of scattered and dispersive urban growth that create hybrid landscapes of fragmented and mixed urban and rural characteristics. Such areas may be referred to as the rural–urban fringe, the outskirts, or the urban hinterland.

Translations

- HI: परिनगरीय क्षेत्र
- BE:পেরি-শহরে এলাকায়

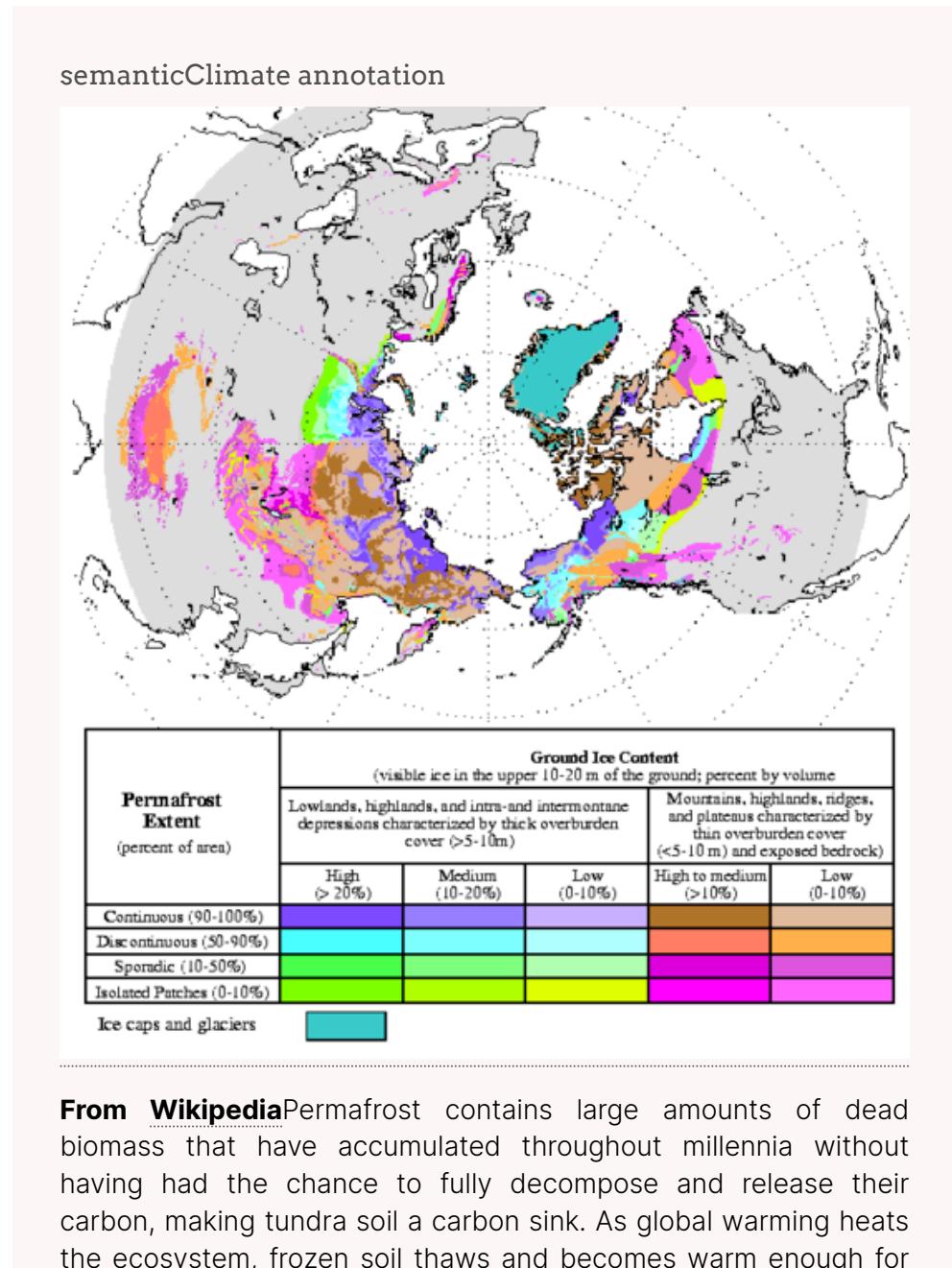
permafrost

Ground (soil or rock, and included ice and organic material) that remains at or below 0°C for at least two consecutive years (Harris et al., 1988).

Note that permafrost is defined via temperature rather than ice content and, in some instances, may be ice-free.

Sub-terms

- Near-surface permafrost
- Permafrost degradation
- Permafrost thaw



decomposition to start anew, accelerating the permafrost carbon cycle.

Translations

- HI: स्थायीतुषार
- BE: ভূগর্ভস্থ চিরশিমায়িত অঞ্চল

WGI,WGII

permafrost degradation

Decrease in the thickness and/or areal extent of permafrost.

Parent-term

- Permafrost

semanticClimate annotation

WGII,WGI

permafrost thaw

Progressive loss of ground ice in permafrost, usually due to input of heat.

Thaw can occur over decades to centuries over the entire depth of permafrost ground, with impacts occurring while thaw progresses. During thaw, temperature fluctuations are subdued because energy is transferred by phase change between ice and water. After the transition from permafrost to non-permafrost, ground can be described as thawed.

Parent-term

- Permafrost

semanticClimate annotation

WGI,WGII

perturbed parameter ensemble

Parameter ensembles in which model parameters are varied in a systematic manner, aim to assess the uncertainty resulting from internal model specifications within a single model.

semanticClimate annotation

WGI

phenology

The relationship between biological phenomena that recur periodically (e.g., development stages, migration) especially related to *climate* and seasonal changes.

semanticClimate annotation

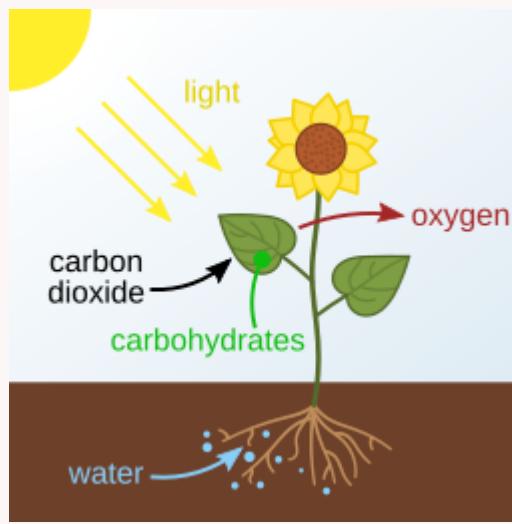
From Wikipedia Phenology is the study of periodic events in biological life cycles and how these are influenced by seasonal and interannual variations in climate, as well as habitat factors (such as elevation).

WGI,WGII

photosynthesis

The production of carbohydrates in plants, algae and some bacteria using the energy of light. Carbon dioxide (CO_2) is used as the carbon source.

semanticClimate annotation



From Wikipedia The term usually refers to oxygenic photosynthesis, where oxygen is produced as a byproduct and some of the chemical energy produced is stored in carbohydrate molecules such as sugars, starch, glycogen and cellulose, which are synthesized from endergonic reaction of carbon dioxide with

water. Most plants, algae and cyanobacteria perform photosynthesis; such organisms are called photoautotrophs. Photosynthesis is largely responsible for producing and maintaining the oxygen content of the Earth's atmosphere, and supplies most of the biological energy necessary for complex life on Earth.

Translations

- HI: प्रकाश-संश्लेषण
- BE:সালোকসংশ্লেষণ

WGI,WGII

physical climate storyline

A self-consistent and plausible unfolding of a physical trajectory of the climate system, or a weather or climate event, on time scales from hours to multiple decades (Shepherd et al., 2018).

Through this, storylines explore, illustrate and communicate uncertainties in the climate system response to forcing and in internal variability.

Parent-term

- Storyline

semanticClimate annotation

WGI

planetary health

A concept based on the understanding that human health and human civilisation depend on ecosystem health and the wise stewardship of ecosystems.

semanticClimate annotation

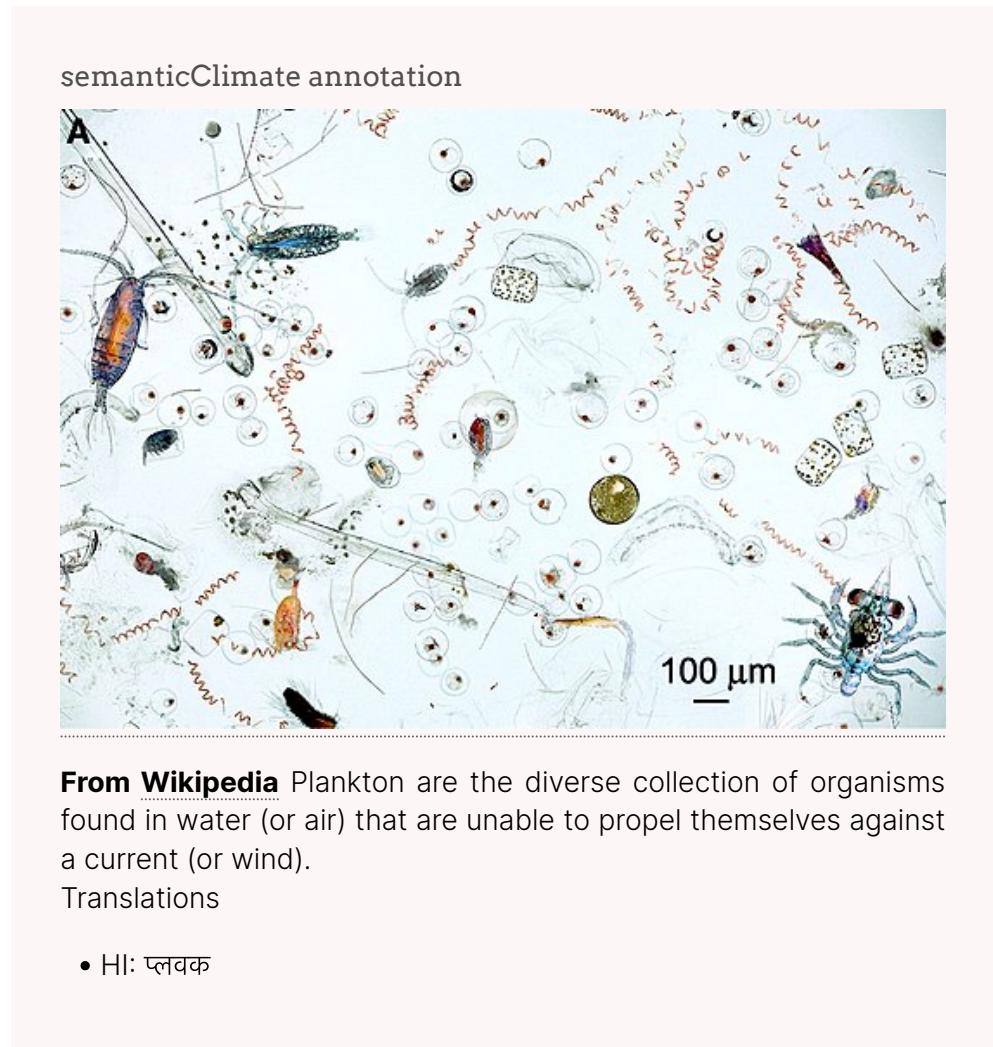
From Wikipedia Planetary Health is a multi- and transdisciplinary research paradigm, a new science for exceptional action, and a global movement. Planetary Health refers to "the health of human civilization and the state of the natural systems on which it depends".

WGII

plankton

Free-floating organisms living in the upper layers of aquatic systems.

Their distribution and migration are primarily determined by water currents. A distinction is made between phytoplankton, which depend on *photosynthesis* for their energy supply, and zooplankton, which feed on phytoplankton, other zooplankton and bacterioplankton.



From Wikipedia Plankton are the diverse collection of organisms found in water (or air) that are unable to propel themselves against a current (or wind).

Translations

- HI: ପଲକ

WGI,WGII

planned relocation

A form of human mobility response in the face of sea level rise and related impacts.

Planned relocation is typically initiated, supervised and implemented from national to local level and involves small communities and individual assets but may also involve large populations. Also termed resettlement, managed retreat or managed realignment.

semanticClimate annotation

WGII
of humans

plant evaporative stress

Plant evaporative stress in both crops and natural vegetation can result from the combination of a high atmospheric evaporative demand and limited available water to supply this demand by means of evapotranspiration, further enhancing *agricultural and ecological drought*.

semanticClimate annotation

WGI

plasticity

Change in organismal trait values in response to an environmental cue and which does not require change in underlying DNA sequence.

semanticClimate annotation

WGII
biology

pleistocene

The Pleistocene Epoch is the earlier of two epochs in the *Quaternary* System, extending from 2.59 Ma to the beginning of the *Holocene* at approximately 11.7 ka.

semanticClimate annotation



From Wikipedia The Pleistocene (/ˈplaɪstəsɪn, -stəʊs-/ PLY-stə-seen, -stoh-; often referred to colloquially as the Ice Age) is the geological epoch that lasted from c. 2.58 million to 11,700 years ago, spanning the Earth's most recent period of repeated glaciations.

Translations

- HI: अत्यंतनूतन युग

WGI

pliocene

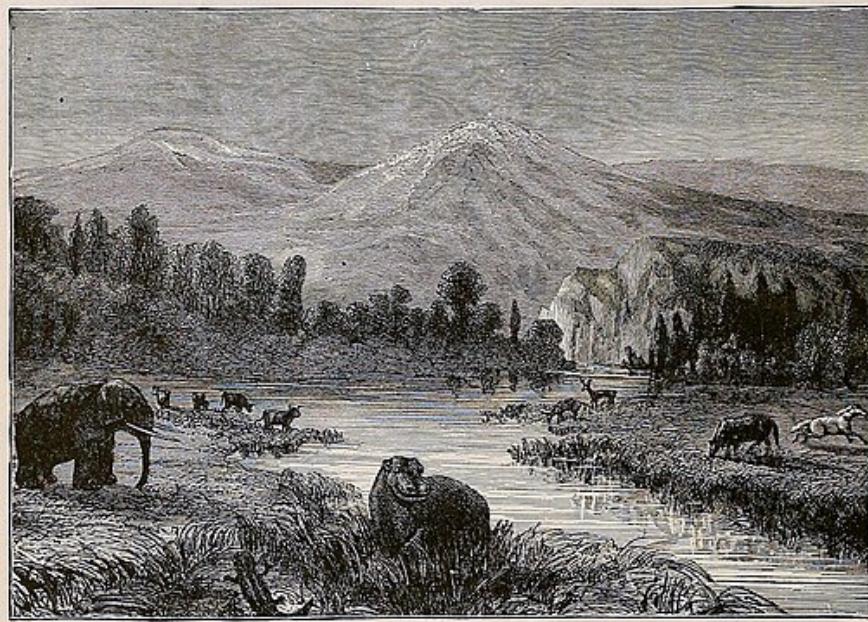
The Pliocene Epoch is the more recent of two epochs of the Neogene Period within the Cenozoic Era.

It extends from 5.33 Ma to the beginning of the Pleistocene Epoch at 2.59 Ma. The Neogene Period precedes the current geological period, the Quaternary Period, which is one of several ice ages that have occurred during Earth's geological history. It encompasses the mid-Pliocene warm period (MPWP), also known as the Piacenzian warm period, which occurred from approximately 3.3 to 3.0 Ma. The MPWP, in turn, encompasses the interglacial episode, marine isotope stage (MIS) KM5c, which peaked at 3.205 Ma, when orbital forcing was similar to modern (Haywood et al., 2016).

References

- Haywood et al. 10.5194/cp-12-663-2016

semanticClimate annotation



From Wikipedia The Pliocene (/'plai.əsi:n, 'plai.oʊ-/ PLY-ə-seen, PLY-oh-; also Pleiocene) is the epoch in the geologic time scale that extends from 5.333 million to 2.58 million years ago. It is the second and most recent epoch of the Neogene Period in the Cenozoic Era.

Translations

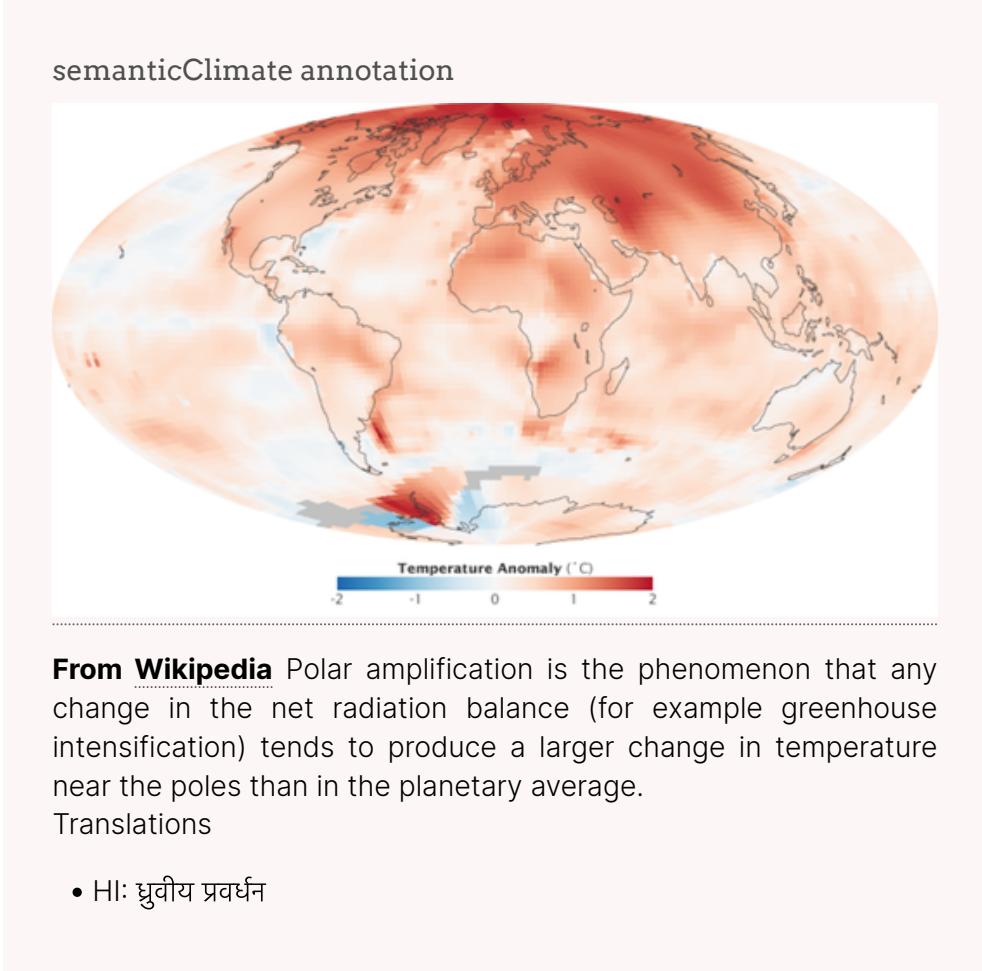
- HI: अतिनूतन युग

WGI

polar amplification

Polar amplification describes the phenomenon where surface temperature change at high latitudes exceeds the global average surface temperature change.

The terms Arctic amplification or Antarctic amplification are used when describing the phenomenon occurring at one of the poles.

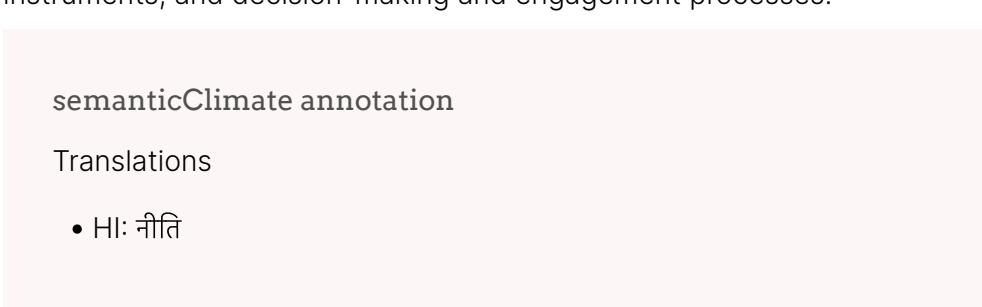


WGI

policies

Strategies that enable actions to be undertaken to accelerate adaptation and mitigation.

Policies include those developed by national and subnational public agencies, and with the private sector. Policies for adaptation and mitigation often take the form of economic incentives, regulatory instruments, and decision-making and engagement processes.



WGII,WGIII
for climate change mitigation and adaptation

political economy

The set of interlinked relationships between people, the State, society and markets as defined by law, politics, economics, customs and power that determine the outcome of trade and transactions and the distribution of wealth in a country or economy.

semanticClimate annotation

Translations

- HI: राजनीतिक अर्थशास्त्र

WGIII,WGII

pollen analysis

A technique of both relative dating and environmental *reconstruction*, consisting of the identification and counting of pollen types preserved in peat, lake sediments and other deposits.

semanticClimate annotation



From Wikipedia

Translations

- HI: पराग विश्लेषण

WGI

polycentric governance

Polycentric governance involves multiple centres of decision-making with overlapping jurisdictions.

While the centres have some degree of autonomy, they also take each other into account, coordinating their actions and seeking to resolve conflicts (Carlisle and Gruby, 2017; Jordan et al., 2018; McGinnis and Ostrom, 2012).

Parent-term

- Governance

semanticClimate annotation

Translations

- HI: बहुकेंद्रित शासन

WGII

pool, carbon and nitrogen

A *reservoir* in the Earth System where elements, such as carbon and nitrogen, reside in various chemical forms for a period of time.

semanticClimate annotation

WGIII

potential evapotranspiration

The potential rate of water loss from wet soils and from plant surfaces, without any limits imposed by the water supply.

Parent-term

- Evapotranspiration

semanticClimate annotation

From Wikipedia Potential evaporation (PE) or potential evapotranspiration (PET) is defined as the amount of evaporation that would occur if a sufficient water source were available.

WGI,WGII

poverty

A complex concept with several definitions stemming from different schools of thought.

It can refer to material circumstances (such as need, pattern of deprivation or limited resources), economic conditions (such as standard of living, inequality or economic position) and/or social relationships (such as social class, dependency, exclusion, lack of basic security or lack of entitlement).

semanticClimate annotation

Translations

- HI: गरीबी

WGIII,WGII

poverty eradication

A set of measures to end poverty in all its forms everywhere.

semanticClimate annotation

WGIII

poverty trap

Poverty trap is understood differently across disciplines.

In the social sciences, the concept, primarily employed at the individual, household or community level, describes a situation in which escaping

poverty becomes impossible due to unproductive or inflexible resources. A poverty trap can also be seen as a critical minimum asset threshold, below which families are unable to successfully educate their children, build up their productive assets and get out of poverty. Extreme poverty is itself a poverty trap since poor persons lack the means to participate meaningfully in society. In economics, the term poverty trap is often used at national scales, referring to a self-perpetuating condition where an economy, caught in a vicious cycle, suffers from persistent underdevelopment (Matsuyama, 2008). Many proposed models of poverty traps are found in the literature.

semanticClimate annotation

From Wikipedia

Translations

- HI: दरिद्रता चक्र

WGII

pre-industrial

The multi-century period prior to the onset of large-scale industrial activity around 1750.

The *reference period* 1850–1900 is used to approximate pre-industrial *global mean surface temperature (GMST)*.

semanticClimate annotation

Translations

- HI: पूर्व औद्योगिक

WGI, WGII, WGIII
period

precipitable water

The total amount of atmospheric water vapour in a vertical column of unit cross-sectional area.

It is commonly expressed in terms of the height of the water if completely condensed and collected in a vessel of the same unit cross section.

semanticClimate annotation

From Wikipedia Precipitable water is the depth of water in a column of the atmosphere, if all the water in that column were precipitated as rain.

Translations

- HI: अवक्षेपणीय जल

WGI

precipitation deficit

A period with an abnormal precipitation deficit is defined as a meteorological drought.

semanticClimate annotation

WGII

precursors

Atmospheric compounds that are not *greenhouse gases (GHGs)* or *aerosols*, but that have an effect on GHG or aerosol concentrations by taking part in physical or chemical processes regulating their production or destruction rates.

semanticClimate annotation

WGII,WGI,WGIII

predictability

The extent to which future states of a system may be predicted based on knowledge of current and past states of the system.

Because knowledge of the *climate system's* past and current states is generally imperfect, as are the models that utilize this knowledge to produce a *climate prediction*, and because the *climate system* is inherently *non-linear* and *chaotic*, predictability of the climate system is inherently limited. Even with arbitrarily accurate models and observations, there may still be limits to the predictability of such a non-linear system (AMS, 2021).

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from:
<http://glossary.ametsoc.org>.

semanticClimate annotation

WGII,WGI

prediction quality/skill

Measures of the success of a prediction against observationally based information.

No single measure can summarize all aspects of forecast quality, and a suite of *metrics* is considered. Metrics will differ for forecasts given in deterministic and probabilistic form.

semanticClimate annotation

WGI

primary energy

The energy that is embodied in resources as they exist in nature (e.g., coal, biomass uranium, solar radiation, wind, ocean currents) (Grubler et al.

2012).

[Note: Primary energy is defined in several alternative ways. The method used in this report is the direct equivalent method, which counts one unit of secondary energy provided from non-combustible sources as one unit of primary energy. For more details on the methodology, see Section 7 in Working Group III Annex II.]

References

- Grubler, A., Johansson, T., Mundaca, L., Nakicenovic, N., Pachauri, S., Riahi, K., . . . Davidson, O. (2012). Energy Primer. In Global Energy Assessment Writing Team (Author), Global Energy Assessment: Toward a Sustainable Future (pp. 99-150). Cambridge: Cambridge University Press.
doi:10.1017/CBO9780511793677.007

semanticClimate annotation

WGIII

primary production

The synthesis of organic compounds by plants and microbes, on land or in the ocean, primarily by *photosynthesis* using light and *2)carbon dioxide (CO₂)* as sources of energy and carbon, respectively.

It can also occur through chemosynthesis, using chemical energy, for example, in deep sea vents.

Sub-terms

- Gross primary production (GPP)
- Net primary production (NPP)

semanticClimate annotation

WGIII,WGII,WGI

private costs

Costs carried by individuals, companies or other private entities that undertake an action, whereas social costs include additionally the external costs on the environment and on society as a whole.

Quantitative estimates of both private and social costs may be incomplete, because of difficulties in measuring all relevant effects.

semanticClimate annotation

WGIII

probability density function

A probability density function is a function that indicates the relative chances of occurrence of different outcomes of a variable.

The function integrates to unity over the domain for which it is defined and has the property that the integral over a sub-domain equals the probability that the outcome of the variable lies within that sub-domain.

For example, the probability that a temperature anomaly defined in a particular way is greater than zero is obtained from its PDF by integrating the PDF over all possible temperature anomalies greater than zero. Probability density functions that describe two or more variables simultaneously are similarly defined.

semanticClimate annotation

WGI
PDF

procedural justice

Justice in the way outcomes are brought about including who participates and is heard in the processes of decision-making.

Parent-term

- Justice

semanticClimate annotation

WGII

process-based model

Theoretical concepts and computational methods that represent and simulate the behaviour of real-world systems derived from a set of functional components and their interactions with each other and the system environment, through physical and mechanistic processes occurring over time.

semanticClimate annotation

WGI

production-based emissions

Emissions released to the atmosphere for the production of goods and services by a certain entity (e.g., a person, firm, country, or region).

semanticClimate annotation

WGIII

projection

A potential future evolution of a quantity or set of quantities, often computed with the aid of a model.

Unlike predictions, projections are conditional on assumptions concerning, for example, future socio-economic and technological developments that may or may not be realised.

semanticClimate annotation

WGIII, WGII, WGI

prosumers

A consumer that also produces energy and inputs energy to the system, for which it is an active agent in the energy system and market.

semanticClimate annotation

WGIII

proxy

A proxy *climate indicator* is any biophysical property of materials formed during the past that is interpreted to represent some combination of climate-related variations back in time.

Climate-related data derived in this way are referred to as proxy data, and time series of proxy data are proxy records. Examples of proxy types include pollen assemblages, *tree ring* widths, speleothem and coral geochemistry, and various data derived from marine sediments and glacier ice. Proxy data can be calibrated to provide quantitative climate information.

semanticClimate annotation

WGII,WGI

Q

Quasi-Biennial Oscillation

A near-periodic oscillation of the equatorial zonal wind between easterlies and westerlies in the tropical *stratosphere* with a mean period of around 28 months.

The alternating wind maxima descend from the base of the mesosphere down to the *tropopause* and are driven by wave energy that propagates up from the *troposphere*.

semanticClimate annotation

From Wikipedia

WGI

QBO

quaternary

The Quaternary Period is the last of three periods that make up the Cenozoic Era (66 Ma to present), extending from 2.58 Ma to the present, and includes the *Pleistocene* and *Holocene* Epochs.

semanticClimate annotation

WGI

R

radiative forcing

The change in the net, downward minus upward, radiative flux (expressed in W m^{-2}) due to a change in an external *driver* of *climate change*, such as a change in the concentration of *carbon dioxide (CO}_2*), the concentration of volcanic *aerosols* or in the output of the Sun.

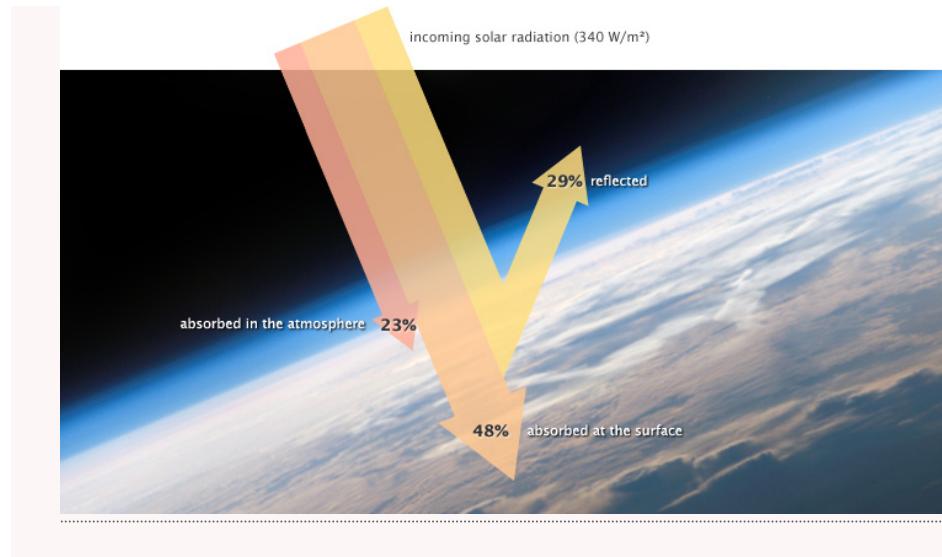
The stratospherically adjusted radiative forcing is computed with all tropospheric properties held fixed at their unperturbed values, and after allowing for stratospheric temperatures, if perturbed, to readjust to radiative-dynamical equilibrium. Radiative forcing is called instantaneous if no change in stratospheric temperature is accounted for. The radiative forcing once both stratospheric and tropospheric adjustments are accounted for is termed the 'effective radiative forcing'.

semanticClimate annotation

#semanticClimate additions

[Wikipedia](#)

Radiative forcing (or climate forcing[1]) is the change in energy flux in the atmosphere caused by natural or anthropogenic factors of climate change as measured in watts per meter squared.[2] It is a scientific concept used to quantify and compare the external drivers of change to Earth's energy balance.[3]:1–4 These external drivers are distinguished from climate feedbacks and internal variability, which also influence the direction and magnitude of imbalance.



WGI,WGIII,WGII

rapid dynamical change

Changes in glacier or ice sheet mass controlled by changes in flow speed and discharge rather than by accumulation or ablation.

This can result in a rate of mass change larger than that due to any imbalance between accumulation and ablation. Rapid dynamical change may be initiated by a climatic trigger, such as incursion of warm ocean water beneath an ice shelf, or thinning of a grounded tide-water terminus, which may lead to reactions within the glacier system that may result in rapid ice loss.

semanticClimate annotation

WGI
of glaciers or ice sheets

reanalysis

Reanalyses are created by processing past meteorological or oceanographic data using fixed state-of-the-art weather forecasting or ocean circulation models with data assimilation techniques.

They are used to provide estimates of variables such as historical atmospheric temperature and wind or oceanographic temperature and currents, and other quantities. Using fixed data assimilation avoids effects from the changing analysis system that occur in operational analyses. Although continuity is improved, global reanalyses still suffer from changing coverage and biases in the observing systems.

semanticClimate annotation

WGI

Reasons for Concern

Elements of a classification framework, first developed in the IPCC Third Assessment Report, which aims to facilitate judgements about what level of climate change may be dangerous (in the language of Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC) by aggregating risks from various sectors, considering hazards, exposures, vulnerabilities, capacities to adapt, and the resulting impacts.

From Wikipedia The Intergovernmental Panel on Climate Change (IPCC) has organized many of the risks of climate change into five "reasons for concern." The reasons for concern show that these risks increase with increases in the Earth's global mean temperature (i.e., global warming).

The IPCC's five reasons for concern are:

- threats to endangered species and unique systems
- damages from extreme climate events
- effects that fall most heavily on developing countries and the poor within countries
- global aggregate impacts (i.e., various measurements of total social, economic and ecological impacts)
- large-scale high-impact events.

The five reasons for concern are described in more detail in the Wikipedia page.

semanticClimate annotation

WGII,WGI
RFCs

rebound effect

Phenomena whereby the reduction in energy consumption or emissions (relative to a baseline) associated with the implementation of mitigation measures in a jurisdiction is offset to some degree through induced changes in consumption, production, and prices within the same jurisdiction. The rebound effect is most typically ascribed to technological energy efficiency improvements.

semanticClimate annotation

From Wikipedia In conservation and energy economics, the rebound effect (or take-back effect) is the reduction in expected gains from new technologies that increase the efficiency of resource use, because of behavioral or other systemic responses.

WGIII

reconstruction

Approach to reconstructing the past temporal and spatial characteristics of a *climate* variable from predictors.

The predictors can be instrumental data if the reconstruction is used to infill missing data or *proxy* data if it is used to develop *paleoclimate* reconstructions. Various techniques have been developed for this purpose: linear multivariate regression-based methods and non-linear Bayesian and analogue methods.

semanticClimate annotation

WGI
of climate variable

Reducing Emissions from Deforestation and Forest Degradation

REDD+ refers to reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (see UNFCCC decision 1/CP.16, para.

70).

semanticClimate annotation

WGIII
REDD+

reference period

A time period of interest, or a period over which some relevant statistics are calculated.

A reference period can be used as a baseline period or as a comparison to a baseline period.

Sub-terms

- Baseline period

semanticClimate annotation

WGIII,WGI,WGII

reference scenario

Scenario used as starting or reference point for a comparison between two or more scenarios.

Note 1: In many types of climate change research, reference scenarios reflect specific assumptions about patterns of socio-economic development and may represent futures that assume no climate policies or specified climate policies, for example those in place or planned at the time a study is carried out. Reference scenarios may also represent futures with limited or no climate impacts or adaptation, to serve as a point of comparison for futures with impacts and adaptation. These are also referred to as baseline scenarios in the literature.

Note 2: Reference scenarios can also be climate policy or impact scenarios, which in that case are taken as a point of comparison to explore the implications of other features, for example, of delay, technological options, policy design and strategy or to explore the effects of additional impacts and adaptation beyond those represented in the reference scenario.

Note 3: The term business as usual scenario has been used to describe a scenario that assumes no additional policies beyond those currently in place and that patterns of socio-economic development are consistent with recent trends. The term is now used less frequently than in the past.

Note 4: In climate change attribution or impact attribution research reference scenarios may refer to counterfactual historical scenarios assuming no anthropogenic greenhouse gas (GHG) emissions (climate change attribution) or no climate change (impact attribution).

Parent-term

- Scenario

semanticClimate annotation

WGI,WGIII,WGII

reforestation

Conversion to forest of land that has previously contained forests but that has been converted to some other use.

[Note: For a discussion of the term forest and related terms such as afforestation, reforestation and deforestation, see the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and their 2019 Refinement, and information provided by the United Nations Framework Convention on Climate Change (IPCC, 2006, 2019; UNFCCC 2021a, b).]

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semanticClimate annotation



From Wikipedia Reforestation is the natural or intentional restocking of existing forests and woodlands (forestation) that have been depleted, usually through deforestation but also after clearcutting.

Translations

- HI: वनीकरण

WGIII,WGII,WGI

refugium

A refugium is a geographic area where a population found safety from some threat to its existence, for example, climate refugia or glacial refugia (refuge from glaciations).

semanticClimate annotation

From Wikipedia In biology, a refugium (plural: refugia) is a location which supports an isolated or relict population of a once more widespread species.

WGII

regenerative agriculture

A universally agreed definition of this relatively new farming approach has yet to be established, but regenerative agriculture broadly refers to the implementation of varying combinations of agricultural management practices, to ensure the continued restoration and enhancement of soil health, biodiversity and ecosystem functioning, in conjunction with profitable agricultural production.

semanticClimate annotation

From Wikipedia

Translations

- HI: पुनर्योजी कृषि

WGIII

region

Land and/or *ocean* area characterised by specific geographical and/or climatological features. The *climate* of a region emerges from a multi-scale combination of its own features, remote influences from other regions, and global climate conditions.

semanticClimate annotation

WGI,WGIII,WGII

regional climate messages

Regional climate messages translate *climate information* synthesized from different lines of *evidence* into the context of a user *vulnerable* to climate at regional scales taking into account the values of both the producer and user (Section 10.5 of the AR6 WGI report).

semanticClimate annotation

WGI

regional climate model

A *climate model* at higher *resolution* over a limited area.

Such models are used in *downscaling* global *climate* results over specific regional domains.

semanticClimate annotation

WGI
RCM

regional sea level change

Change in sea level relative to a datum (such as present-day *mean sea level*) at spatial scales of about 100 km.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

regulation

A rule or order issued by governmental executive authorities or regulatory agencies and having the force of law.

Regulations implement policies and are mostly specific for particular groups of people, legal entities or targeted activities. Regulation is also the act of designing and imposing rules or orders. Informational, transactional, administrative and political constraints in practice limit the regulator's capability for implementing preferred policies.

semanticClimate annotation

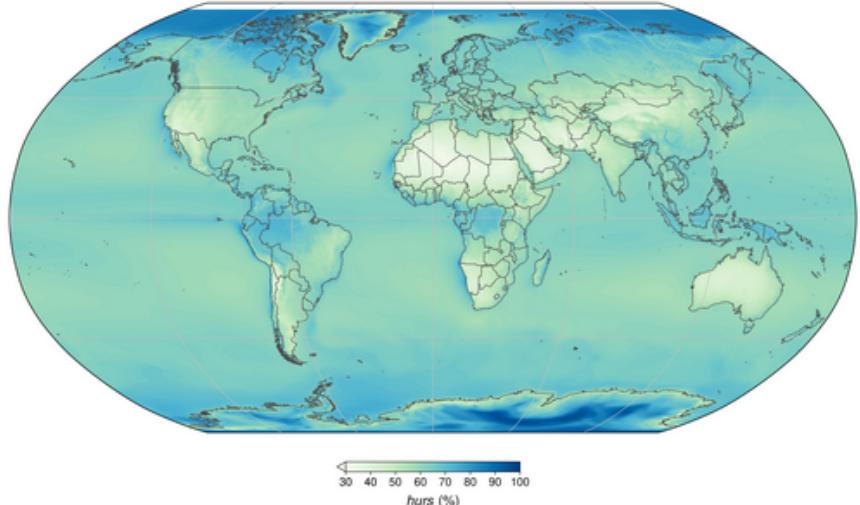
WGII

relative humidity

The ratio of actual water vapour pressure to that at saturation with respect to liquid water or ice at the same temperature.

semanticClimate annotation

World map of near-surface relative humidity for the period 1981-2010 based on the CHELSA-BIOCLIM+ data set



From Wikipedia Humidity is the concentration of water vapor present in the air. Water vapor, the gaseous state of water, is generally invisible to the human eye.

Translations

- HI: आपेक्षिक आर्द्रता

WGI, WGII

relative sea level change

The change in local mean *sea surface height (SSH)* relative to the local solid surface, that is, the sea floor, as measured by instruments that are fixed to the Earth's surface, such as *tide gauges*.

This reference frame is used when considering coastal *impacts*, *hazards* and *adaptation* needs.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

RSL

remaining carbon budget

Cumulative global CO₂ emissions from the start of 2018 to the time that CO₂ emissions reach net-zero that would result in a given level of global warming.

semanticClimate annotation

WGI,WGIII

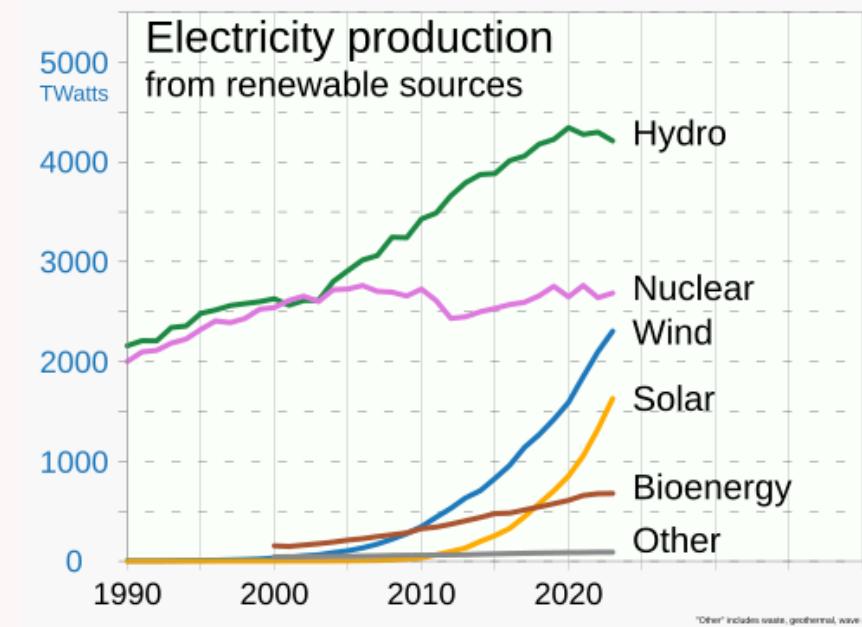
renewable energy

Any form of energy that is replenished by natural processes at a rate that equals or exceeds its rate of use.

Sub-terms

- Variable renewable energy (VRE)

semanticClimate annotation



From Wikipedia Renewable energy is energy from renewable resources that are naturally replenished on a human timescale. Renewable resources include sunlight, wind, the movement of water, and geothermal heat.

Translations

- HI: અક્ષય ઉર્જા

WGIII
RE

reporting

The process of formal reporting of assessment results to the *United Nations Framework Convention on Climate Change* (UNFCCC), according to predetermined formats and established standards, especially the Intergovernmental Panel on Climate Change (IPCC) Guidelines and GPG (Good Practice Guidance)' (UN REDD, 2009).

Parent-term

- Measurement, Reporting and Verification (MRV)

WGIII,WGII

Representative Concentration Pathways

Scenarios that include time series of *emissions* and concentrations of the full suite of *greenhouse gases (GHGs)* and *aerosols* and chemically active gases, as well as *land use/land cover* (Moss et al., 2008; van Vuuren et al., 2011). The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific *radiative forcing* characteristics. The term pathway emphasises that not only the long-term concentration levels are of interest, but also the trajectory taken over time to reach that outcome (Moss et al., 2010; van Vuuren et al., 2011).

RCPs usually refer to the portion of the concentration pathway extending up to 2100, for which *integrated assessment models* produced corresponding emission scenarios. Extended concentration pathways describe extensions of the RCPs from 2100 to 2300 that were calculated using simple rules generated by stakeholder consultations, and do not represent fully consistent scenarios. Four RCPs produced from integrated assessment models were selected from the published literature and used in the IPCC Fifth Assessment and are also used in this Assessment for comparison, spanning the range from approximately below 2°C warming to high (>4°C) warming best-estimates by the end of the 21st century: RCP2.6, RCP4.5 and RCP6.0 and RCP8.5.

- RCP2.6: One pathway where radiative forcing peaks at approximately 3 W m⁻² and then declines to be limited at 2.6 W m⁻² in 2100 (the corresponding Extended Concentration Pathway, or ECP, has constant emissions after 2100).
- RCP4.5 and RCP6.0: Two intermediate stabilisation pathways in which radiative forcing is limited at approximately 4.5 W m⁻² and 6.0 W m⁻² in 2100 (the corresponding ECPs have constant concentrations after 2150).
- RCP8.5: One high pathway which leads to >8.5 W m⁻² in 2100 (the corresponding ECP has constant emissions after 2100 until 2150 and constant concentrations after 2250).

Parent-term

- *Pathways*

semanticClimate annotation

WGI, WGIII, WGII
RCPs

Representative Key Risks

Representative, thematic clusters of key risks.

semanticClimate annotation

WGII
RKRs

reservoir

A component or components of the climate system where a *greenhouse gas (GHG)* or a *precursor* of a greenhouse gas is stored (UNFCCC Article 1.7 (UNFCCC, 1992)).

semanticClimate annotation

WGI, WGII

residual risk

The risk related to climate change impacts that remains following adaptation and mitigation efforts.

Adaptation actions can redistribute risk and impacts, with increased risk and impacts in some areas or populations, and decreased risk and impacts in others.

semanticClimate annotation

WGII

resilience

The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, responding or

reorganising in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it maintains capacity for adaptation, learning and/or transformation (Arctic Council, 2016).

semanticClimate annotation

WGI,WGIII,WGII

resolution

In *climate models*, this term refers to the physical distance (metres or degrees) between each point on the grid used to compute the equations.

Temporal resolution refers to the time step or time elapsed between each model computation of the equations.

semanticClimate annotation

WGI,WGII

resource cascade

Tracking resource use (materials, energy, water, etc.), efficiency and losses through all conversion steps from primary resource extraction to various conversion steps, all the way to final service delivery.

semanticClimate annotation

WGIII

respiration

The process whereby living organisms convert organic matter to *carbon dioxide* (CO_2), releasing energy and consuming molecular oxygen.

semanticClimate annotation

WGI,WGII

response time or adjustment time

In the context of climate variations, the response time or adjustment time is the time needed for the *climate system* or its components to re-equilibrate to a new state, following a forcing resulting from external processes. It is very different for various components of the climate system. The response time of the *troposphere* is relatively short, from days to weeks, whereas the *stratosphere* reaches equilibrium on a time scale of typically a few months. Due to their large heat capacity, the oceans have a much longer response time: typically decades, but up to centuries or millennia. The response time of the strongly coupled surface-troposphere system is, therefore, slow compared to that of the stratosphere, and mainly determined by the oceans. The *biosphere* may respond quickly (e.g., to *droughts*), but also very slowly to imposed changes.

In the context of *lifetimes*, response time or adjustment time (T_a) is the time scale characterizing the decay of an instantaneous pulse input into the *reservoir*. See *Response time or adjustment time (T_a)* under *Lifetime*.

semanticClimate annotation

WGI

response time or adjustment time

Response time or adjustment time (T_a) is the time scale characterizing the decay of an instantaneous pulse input into the *reservoir*. The term adjustment time is also used to characterize the adjustment of the mass of a reservoir following a step change in the *source* strength. Half-life or decay constant is used to quantify a first-order exponential decay process. See *Response time or adjustment time* for a different definition pertinent to *climate* variations.

The term lifetime is sometimes used, for simplicity, as a surrogate for adjustment time.

In simple cases, where the global removal of the compound is directly proportional to the total mass of the reservoir, the adjustment time equals the *turnover time*: $T = Ta$. An example is CFC-11, which is removed from the *atmosphere* only by photochemical processes in the *stratosphere*. In more complicated cases, where several reservoirs are involved or where the removal is not proportional to the total mass, the equality $T = Ta$ no longer holds.

Carbon dioxide (CO₂) is an extreme example. Its turnover time is only about 4 years because of the rapid exchange between the atmosphere and the ocean and terrestrial biota. However, a large part of that CO₂ is returned to the atmosphere within a few years. The adjustment time of CO₂ in the atmosphere is determined from the rates of removal of carbon by a range of processes with time scales from months to hundreds of thousands of years. As a result, 15 to 40% of an emitted CO₂ pulse will remain in the atmosphere longer than 1,000 years, 10 to 25% will remain about ten thousand years, and the rest will be removed over several hundred thousand years.

In the case of *methane (CH₄)*, the adjustment time is different from the turnover time because the removal is mainly through a chemical reaction with the hydroxyl radical (OH), the concentration of which itself depends on the CH₄ concentration. Therefore, the CH₄ removal rate S is not proportional to its total mass M.

Parent-term

- Lifetime

semanticClimate annotation

WGI
Ta

restoration

In the environmental context, restoration involves human interventions to assist the recovery of an *ecosystem* that has been previously degraded, damaged or destroyed.

semanticClimate annotation

WGII

return period

An estimate of the average time interval between occurrences of an event (e.g., flood or extreme rainfall) of (or below/above) a defined size or intensity.

semanticClimate annotation

WGI,WGII

return value

The highest (or, alternatively, lowest) value of a given variable, on average occurring once in a given period of time (e.g., in 10 years).

semanticClimate annotation

WGI

risk

The potential for adverse consequences for human or ecological systems, recognising the diversity of values and objectives associated with such systems.

In the context of *climate change*, risks can arise from potential *impacts* of climate change as well as human responses to climate change. Relevant adverse consequences include those on lives, *livelihoods*, health and *well-being*, economic, social and cultural assets and investments, infrastructure, services (including *ecosystem services*), *ecosystems* and species.

In the context of climate change impacts, risks result from dynamic interactions between climate-related *hazards* with the *exposure* and *vulnerability* of the affected human or ecological system to the hazards. Hazards, exposure and vulnerability may each be subject to uncertainty in terms of magnitude and *likelihood* of occurrence, and each may change over time and space due to socio-economic changes and human decision-making (see also *risk management*, *adaptation* and *mitigation*).

In the context of climate change responses, risks result from the potential for such responses not achieving the intended objective(s), or from potential trade-offs with, or negative side-effects on, other societal

objectives, such as the *Sustainable Development Goals (SDGs)* (see also *risk trade-off*). Risks can arise, for example, from uncertainty in implementation, effectiveness or outcomes of *climate policy*, climate-related investments, technology development or adoption, and system transitions.

Sub-terms

- Compound risks

semanticClimate annotation

WGI,WGIII,WGII

risk assessment

The qualitative and/or quantitative scientific estimation of *risks*.

semanticClimate annotation

WGI,WGIII,WGII

risk framework

A common framework for describing and assessing *risk* across all three Working Groups is adopted to promote clear and consistent communication of risks and to better inform *risk assessment* and decision-making related to *climate change*.

semanticClimate annotation

WGI

risk management

Plans, actions, strategies or policies to reduce the *likelihood* and/or magnitude of adverse potential consequences, based on assessed or perceived *risks*.

semanticClimate annotation

WGI,WGIII,WGII

risk perception

The subjective judgement that people make about the characteristics and severity of a *risk*.

semanticClimate annotation

WGIII,WGII,WGI

risk trade-off

The change in the portfolio of *risks* that occurs when a countervailing risk is generated (knowingly or inadvertently) by an intervention to reduce the target risk (Wiener and Graham, 2009).

semanticClimate annotation

WGIII,WGI

risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

semanticClimate annotation

WGII

river discharge

Water flow within a river channel, for example, expressed in m³s⁻¹.

A synonym for river streamflow.

semanticClimate annotation

WGI

rock glacier

A debris landform (mass of rock fragments and finer material that contains either an ice core or an ice-cemented matrix) generated by a former or current gravity-driven creep of *permafrost* in mountain slopes (Harris et al., 1988; Giardino et al., 2011; IPA-RG, 2020).

It is detectable in the landscape due to the occurrence of (i) a steep slope delimiting the terminal part, (ii) generally well-defined lateral margins in a continuation of the front, and (iii) transversal or longitudinal ridges and furrows (ridge and furrow topography). These are geomorphological indicators of the occurrence of permafrost conditions. Although it is an ice storage feature, it is not a type of glacier since it does not originate at the surface by the recrystallization of snow.

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 Harris, S. A., French, H. M., Heginbottom, J. A., Johnston, G. H., Ladanyi, B., Sego, D. C., et al. (1998). Glossary of Permafrost and Related Ground Ice Terms. Ottawa, Ontario, Canada: National Research Council of Canada Available at:
https://ipa.arcticportal.org/images/Glossary/Glossary_of_Permafrost_and_Related_Ground-Ice_Terms_1998.pdf [Accessed November 17, 2017].

semanticClimate annotation



From Wikipedia Rock glaciers are distinctive geomorphological landforms, consisting either of angular rock debris frozen in interstitial ice, former "true" glaciers overlain by a layer of talus, or something in-between.

Translations

- HI: चट्टानी ग्लेशियर

WGI

runoff

The flow of water over the surface or through the subsurface, which typically originates from the part of liquid precipitation and/or snow/ice melt that does not evaporate, transpire or refreeze, and returns to water bodies.

semanticClimate annotation

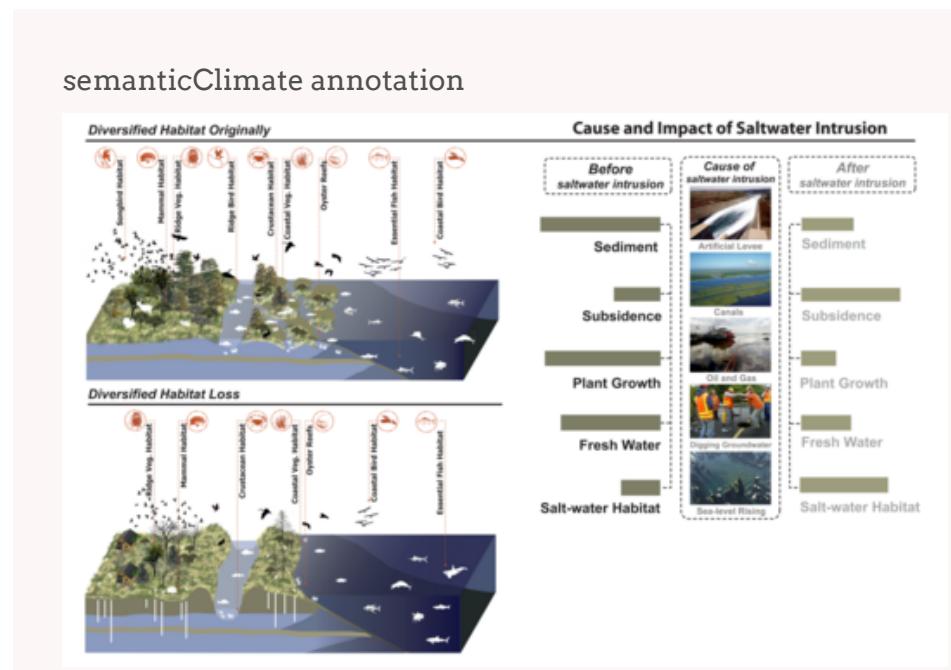
WGII,WGI

S

salt-water intrusion/encroachment

Displacement of fresh surface water or groundwater by the advance of salt water due to its greater density.

This usually occurs in coastal and estuarine areas due to decreasing land-based influence (e.g., from reduced runoff or groundwater recharge, or from excessive water withdrawals from aquifers) or increasing marine influence (e.g., relative sea level rise).



From Wikipedia Saltwater intrusion is the movement of saline water into freshwater aquifers, which can lead to groundwater quality degradation, including drinking water sources, and other consequences. Saltwater intrusion can naturally occur in coastal aquifers, owing to the hydraulic connection between groundwater and seawater.

WGII

sampling uncertainty

Uncertainty arising from incomplete or uneven availability of measurements in either space or time or both.

Parent-term

- Uncertainty

semanticClimate annotation

WGI

scenario

A plausible description of how the future may develop based on a coherent and internally consistent set of assumptions about key driving forces (e.g., rate of technological change, prices) and relationships.

Note that scenarios are neither predictions nor forecasts, but are used to provide a view of the implications of developments and actions.

Sub-terms

- Baseline scenario
- Concentrations scenario
- Emissions scenario
- Mitigation scenario
- Reference scenario
- Socio-economic scenario

semanticClimate annotation

WGI, WGIII, WGI

scenario storyline

A narrative description of a scenario (or family of scenarios), highlighting the main scenario characteristics, relationships between key driving forces and the dynamics of their evolution.

Parent-term

- Storyline

semanticClimate annotation

WGI,WGIII

sea ice

Ice found at the sea surface that has originated from the freezing of seawater.

Sea ice may be discontinuous pieces (ice floes) moved on the ocean surface by wind and currents (pack ice), or a motionless sheet attached to the coast (land-fast ice). Sea ice concentration is the fraction of the ocean covered by ice. Sea ice less than one year old is called first-year ice. Perennial ice is sea ice that survives at least one summer. It may be subdivided into second-year ice and multi-year ice, where multi-year ice has survived at least two summers.

Sub-terms

- Sea ice area (SIA)
- Sea ice concentration
- Sea ice extent (SIE)

semanticClimate annotation



From Wikipedia Sea ice arises as seawater freezes. Because ice is less dense than water, it floats on the ocean's surface (as does fresh water ice, which has an even lower density).

Translations

- HI: समुद्री बर्फ

WGI,WGII

sea ice area

Sea ice area is the area covered by sea ice.

In contrast to *sea ice extent*, it is a linear measure of sea ice coverage that does not depend on grid resolution.

Parent-term

- Sea ice

semanticClimate annotation

WGI

SIA

sea ice concentration

Sea ice concentration is the fraction of the ocean covered by ice.

Parent-term

- Sea ice

semanticClimate annotation

From Wikipedia Sea ice concentration is a useful variable for climate scientists and nautical navigators. It is defined as the area of sea ice relative to the total at a given point in the ocean. This article will deal primarily with its determination from remote sensing measurements.

WGI

sea ice extent

Sea ice extent is calculated for gridded data products as the total area of all grid cells with *sea ice concentration* above a given threshold, usually 15 %.

It hence is a grid-dependent, non-linear measure of sea ice coverage.

Parent-term

- Sea ice

semanticClimate annotation

WGI
SIE

sea level change

Change to the height of sea level, both globally and locally (*relative sea level* change) at seasonal, annual, or longer time scales due to (1) a change in *ocean* volume as a result of a change in the mass of water in the ocean (e.g., due to melt of *glaciers* and *ice sheets*), (2) changes in ocean volume as a result of changes in ocean water density (e.g., expansion under warmer conditions), (3) changes in the shape of the ocean basins and changes in the Earth's gravitational and rotational fields and (4) local subsidence or uplift of the *land*.

Global mean sea level change resulting from change in the mass of the ocean is called barystatic. The amount of barystatic sea level change due to the addition or removal of a mass of water is called its *sea level equivalent (SLE)*. Sea level changes, both globally and locally, resulting from changes in water density are called steric. Density changes induced by temperature changes only are called thermosteric, while density changes induced by salinity changes are called halosteric. Barystatic and steric sea level changes do not include the effect of changes in the shape of ocean basins induced by the change in the ocean mass and its distribution.

Sub-terms

- Geocentric sea level change
- Global mean sea level (GMSL) change
- Gravitational, rotational and deformational (GRD) effects
- Halosteric sea level change
- Local sea level change

- Ocean dynamic sea level change
- Regional sea level change
- Relative sea level (RSL) change
- Steric sea level change
- Thermosteric sea level change

semanticClimate annotation

WGI, WGII
sea level rise/sea level fall

sea level equivalent

The SLE of a mass of water, ice, or water vapour is that mass, converted to a volume using a density of 1000 kg m^{-3} , and divided by the present-day *ocean* surface area of $3.625 \times 1000 \text{ m}^2$.

Thus, 362.5 Gt of water mass added to the ocean correspond to 1 mm of global mean sea level rise.

semanticClimate annotation

WGI
SLE

sea level rise

Change to the height of sea level, both globally and locally (relative sea level change) (at seasonal, annual or longer time scales) due to (1) a change in ocean volume as a result of a change in the mass of water in the ocean (e.g., due to melt of glaciers and ice sheets), (2) changes in ocean volume as a result of changes in ocean water density (e.g., expansion under warmer conditions), (3) changes in the shape of the ocean basins and changes in the Earth's gravitational and rotational fields and (4) local subsidence or uplift of the land.

Global mean sea level change resulting from change in the mass of the ocean is called barystatic. The amount of barystatic sea level change due to the

addition or removal of a mass of water is called its sea level equivalent (SLE). Sea level changes, both globally and locally, resulting from changes in water density are called steric. Density changes induced by temperature changes only are called thermosteric, while

density changes induced by salinity changes are called halosteric. Barystatic and steric sea level changes do not include the effect of changes in the shape of ocean basins induced by the change in the ocean mass and its distribution.

semanticClimate annotation

WGI
SLR

sea surface temperature

The subsurface bulk temperature in the top few metres of the ocean, measured by ships, buoys and drifters.

From ships, measurements of water samples in buckets were mostly switched in the 1940s to samples from engine intake water. Satellite measurements of skin temperature (uppermost layer; a fraction of a millimetre thick) in the infrared or the top centimetre or so in the microwave are also used, but must be adjusted to be compatible with the bulk temperature.

semanticClimate annotation

WGI,WGII,WGIII
SST

semi-arid zone

Areas where vegetation growth is constrained by limited water availability, often with short growing seasons and high interannual variation in primary production.

Annual precipitation ranges from 300 to 800 mm, depending on the occurrence of summer and winter rains.

semanticClimate annotation

WGII

semi-empirical model

Model in which calculations are based on a combination of observed associations between variables and theoretical considerations relating variables through fundamental principles (e.g., conservation of energy).

For example, in sea level studies, semi-empirical models refer specifically to transfer functions formulated to project future *global mean sea level (GMSL) change*, or contributions to it, from future *global surface temperature change* or *radiative forcing*.

semanticClimate annotation

WGI

Sendai Framework for Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction 2015–2030 outlines seven clear targets and four priorities for action to prevent new, and to reduce existing, disaster risks.

The voluntary, non-binding agreement recognises that the State has the primary role to reduce disaster risk but that responsibility should be shared with other stakeholders, including local government and the private sector. Its aim is to achieve 'substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries'.

semanticClimate annotation

From Wikipedia The Sendai Framework for Disaster Risk Reduction (2015–2030) is an international document that was adopted by the United Nations (UN) member states between 14 and 18 March 2015 at the World Conference on Disaster Risk Reduction held in Sendai, Japan, and endorsed by the UN General Assembly in June 2015.

WGII

sensible heat flux

The turbulent or conductive flux of heat from the Earth's surface to the *atmosphere* that is not associated with phase changes of water; a component of the surface *energy budget*.

semanticClimate annotation

WGI

sensitivity

The degree to which a system or species is affected, either adversely or beneficially, by climate variability or change.

The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., damages caused by an increase in the frequency of coastal flooding due to sea level rise).

semanticClimate annotation

WGII

sequestration

The process of storing carbon in a carbon pool.

semanticClimate annotation

WGIII,WGII,WGI

sequestration potential

The quantity of greenhouse gases that can be removed from the atmosphere by anthropogenic enhancement of sinks and stored in a pool.

See Mitigation potential for different subcategories of sequestration potential.

semanticClimate annotation

WGI,WGIII

service provisioning

Various services (such as illumination and mobility) can be provided by 'systems' through the use of energy, materials, and other resources comprising (i) Resource flows (e.g., energy), (ii) Technologies for resource use and energy conversion (e.g., vehicles and their engines), and (iii) Social/organisational forms of service delivery (e.g., publicly owned companies, or privately owned companies, e-commerce).

semanticClimate annotation

WGIII

services

Activities that help satisfy human wants or needs.

While they usually involve relationships between producers and consumers, services are less tangible and less storable than goods since they represent flows not stocks, and when their regeneration conditions are protected they may be reused over time.

semanticClimate annotation

WGIII

settlements

Places of concentrated human habitation.

Settlements can range from isolated rural villages to urban regions with significant global influence. They can include formally planned and informal or illegal habitation and related infrastructure.

semanticClimate annotation

WGII, WGIII

shared socio-economic pathways

Shared Socio-economic Pathways (SSPs) have been developed to complement the Representative Concentration Pathways (RCPs).

By design, the RCP emission and concentration pathways were stripped of their association with a certain socio-economic development. Different levels of emissions and climate change along the dimension of the RCPs can hence be explored against the backdrop of different socio-economic development pathways (SSPs) on the other dimension in a matrix. This integrative SSP-RCP framework is now widely used in the climate impact and policy analysis literature, where climate projections obtained under the RCP scenarios are analysed against the backdrop of various SSPs. As several emissions updates were due, a new set of emissions scenarios was developed in conjunction with the SSPs. Hence, the abbreviation SSP is now used for two things: On the one hand SSP1, SSP2, ..., SSP5 are used to denote the five socio-economic scenario families. On the other hand, the abbreviations SSP1-1.9, SSP1-2.6, ..., SSP5-8.5 are used to denote the newly developed emissions scenarios that are the result of an SSP implementation within an integrated assessment model. Those SSP scenarios are bare of climate policy assumption, but in combination with so-called shared policy assumptions (SPAs), various approximate radiative forcing levels of 1.9, 2.6, ..., or 8.5 W m⁻² are reached by the end of the century, respectively.

Parent-term

- Pathways

semanticClimate annotation

WGI, WGIII, WGII
SSPs

sharing economy.

A system which allows people to share goods and services by enabling collaborative use, access or ownership.

semanticClimate annotation

WGIII

shelf seas

Relatively shallow water covering the shelf of continents or around islands.

The limit of shelf seas is conventionally considered as 200 m water depth at the continental shelf edge, where there is usually a steep slope to the

deep *ocean* floor. During glacial periods, most shelf seas are lost since they become *land* as the build-up of *ice sheets* caused a decrease of global sea level.

semanticClimate annotation

WGII

shifting development pathways

In this report, shifting development pathways describes transitions aimed at re-directing existing developmental trends.

Societies may put in place enabling conditions to influence their future development pathways, when they endeavour to achieve certain outcomes. Some outcomes may be common, while others may be context-specific, given different starting points.

semanticClimate annotation

WGIII

SDP

shifting development pathways to sustainability

Shifting development pathways to sustainability involves transitions aligned with a shared aspiration in the Sustainable Development Goals (SDGs) agreed globally, though sustainability may be interpreted differently in various contexts as societies pursue a variety of sustainable development objectives.

semanticClimate annotation

WGIII

SDPS

short-lived climate forcers

A set of chemically reactive compounds with short (relative to *carbon dioxide (CO₂)*) atmospheric lifetimes (from hours to about two decades) but characterised by different physiochemical properties and environmental effects.

Their emission or formation has a significant effect on radiative forcing over a period determined by their respective atmospheric *lifetimes*. Changes in their *emissions* can also induce long-term *climate* effects via, in particular, their interactions with some biogeochemical cycles. SLCFs are classified as direct or indirect, with direct SLCFs exerting climate effects through their *radiative forcing* and indirect SLCFs being the *precursors* of other direct climate forcers. Direct SLCFs include 4)*methane* (CH_4 , 3)*ozone* (O_3 , primary *aerosols* and some halogenated species. Indirect SLCFs are precursors of ozone or secondary aerosols. SLCFs can be cooling or warming through interactions with radiation and clouds. They are also referred to as near-term climate forcers. Many SLCFs are also air pollutants. A subset of exclusively warming SLCFs is also referred to as short-lived climate pollutants (SLCPs), including methane, ozone, and *black carbon* (BC).

semanticClimate annotation

WGI,WGIII
SLCFs

short-lived climate pollutants

Many SLCFs are also air pollutants.

semanticClimate annotation

[From Wikipedia](#)

WGIII,WGI
SLCP

significant wave height

The average trough-to-crest height of the highest one-third of the wave heights (sea and swell) occurring in a particular time period.

semanticClimate annotation

From Wikipedia In physical oceanography, the significant wave height (SWH, HTSGW or H_s) is defined traditionally as the mean wave height (trough to crest) of the highest third of the waves ($H_{1/3}$).

WGI

simple climate model

A broad class of lower-dimensional models of the *energy balance*, radiative transfer, *carbon cycle*, or a combination of such physical components.

SCMs are also suitable for performing *emulations* of climate-mean variables of *Earth system models (ESMs)*, given that their structural flexibility can capture both the parametric and structural uncertainties across process-oriented ESM responses. They can also be used to test consistency across multiple lines of evidence with regard to *climate sensitivity* ranges, *transient climate responses (TCRs)*, *transient climate response to cumulative CO₂ emissions (TCREs)* and carbon cycle feedbacks.

semanticClimate annotation

WGI,WGIII
SCM

sink

Any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas from the atmosphere (*United Nations Framework Convention on Climate Change (UNFCCC) Article 1.8 (UNFCCC, 1992)*).

semanticClimate annotation

WGIII,WGII,WGI

Small Island Developing States

Small Island Developing States (SIDS), as recognised by the United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States (OHRLS), are a distinct group of developing countries facing specific social, economic and environmental vulnerabilities (UN-OHRLS, 2011).

They were recognised as a special case for both their environment and their development at the Rio Earth Summit in Brazil in 1992. Fifty-eight countries and territories are presently classified as SIDS by the UN OHRLS, with 38 being UN member states and 20 being Non-UN

Members or Associate Members of the Regional Commissions (UN-OHRLS, 2018).



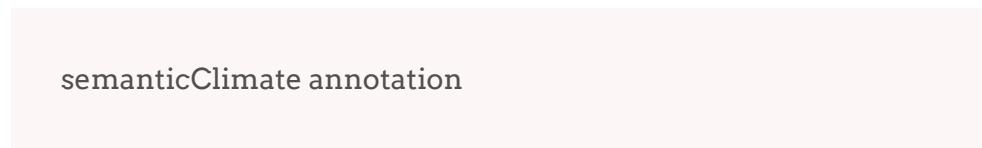
From Wikipedia The Small Island Developing States (SIDS) are a grouping of developing countries which are small island countries and tend to share similar sustainable development challenges.

WGI, WGII, WGIII
SIDS

smart grids

A smart grid uses information and communications technology to gather data on the behaviours of suppliers and consumers in the production, distribution, and use of electricity.

Through automated responses or the provision of price signals, this information can then be used to improve the efficiency, reliability, economics, and sustainability of the electricity network.



WGIII

snow cover

Snow cover refers to all the snow that has accumulated on the ground at a given time (UNESCO/IASH/WMO, 1970).

Sub-terms

- Snow cover duration (SCD)
 - Snow cover extent (SCE)

- Snow water equivalent (SWE)

References

- UNESCO/IASH/WMO Technical papers in hydrology 1970.
Seasonal Snow Cover, a guide for measurement, compilation and
assemblage of data

semanticClimate annotation

WGI,WGII

snow cover duration

How long snow continuously remains on the land surface, or the period between snow-on and snow-off dates.

Parent-term

- Snow cover

semanticClimate annotation

WGI
SCD

snow cover extent

The areal extent of snow covered ground.

Parent-term

- Snow cover

semanticClimate annotation

WGI
SCE

snow water equivalent

The depth of liquid water that would result if a mass of snow melted completely.

Parent-term

- Snow cover

semanticClimate annotation

WGI,WGII
SWE

social cost of carbon

The net present value of aggregate climate damages (with overall harmful damages expressed as a number with positive sign) from one more tonne of carbon in the form of *carbon dioxide (CO₂)*, conditional on a global emissions trajectory over time.

semanticClimate annotation

From Wikipedia The social cost of carbon (SCC) is the marginal cost of the impacts caused by emitting carbon emissions at any point in time.

WGIII
SCC

social costs

The full costs of an action in terms of social welfare losses, including external costs associated with the impacts of this action on the environment, the economy (*GDP*, employment) and on the society as a whole.

semanticClimate annotation

WGIII

social-ecological system

An integrated system that includes human societies and *ecosystems*, in which humans are part of nature.

The functions of such a system arise from the interactions and interdependence of the social and ecological subsystems. The system's structure is characterised by reciprocal feedbacks, emphasising that

humans must be seen as a part of, not apart from, nature (Berkes and Folke 1998; Arctic Council, 2016).

semanticClimate annotation

Translations

- HI: सामाजिक-पारिस्थितिक प्रणाली

WGIII,WGII

social group

A collective of people who share similar characteristics and collectively may have a sense of unity (Forsyth 2010).

References

- Forsyth, Donelson R. (2010): Group Dynamics (5 ed.). Belmont, CA: Wadsworth, Cengage Learning.

semanticClimate annotation

Translations

- HI: सामाजिक समूह

WGIII

social identity

The portion of an individual's self-concept derived from perceived membership in a relevant social group (Tajfel and Turner 1986).

References

- Tajfel, H., & Turner, J. C. (1986): The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (eds.). Psychology of Intergroup Relations. Chicago, IL: Nelson-Hall. pp. 7–24.

semanticClimate annotation

Translations

- HI: सामाजिक पहचान

WGIII

social inclusion

A process of improving the terms of participation in society, particularly for people who are disadvantaged, through enhancing opportunities, access to resources and respect for rights (UN DESA 2016).

semanticClimate annotation

Translations

- HI: सामाजिक समावेश

WGIII,WGII

social infrastructure

The social, cultural, and financial activities and institutions as well as associated property, buildings and artefacts and policy domains such as social protection, health and education that support well-being and public life (Frolova et al., 2016; Latham and Layton, 2019).

Parent-term

- Infrastructure

semanticClimate annotation

Translations

- HI: सामाजिक बुनियादी ढाँचा

WGII,WGIII

social justice

Just or fair relations within society that seek to address the distribution of wealth, access to resources, opportunity, and support according to principles of justice and fairness.

Parent-term

- Justice

semanticClimate annotation

Translations

- HI: सामाजिक न्याय

WGII

social learning

A process of social interaction through which people learn new behaviours, capacities, values, and attitudes.

semanticClimate annotation

Translations

- HI: सामाजिक शिक्षण

WGIII,WGII

social protection

In the context of development aid and climate policy, social protection usually describes public and private initiatives that provide income or consumption transfers to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised, with the overall objective of reducing the economic and social vulnerability of poor, vulnerable, and marginalised groups (Devereux and Sabates-Wheeler, 2004).

In other contexts, social protection may be used synonymously with social policy and can be described as all public and private initiatives that provide access to services, such as health, education or housing, or income and consumption transfers to people. Social protection policies protect the poor and vulnerable against livelihood risks and enhance the social status and rights of the marginalised, as well as prevent vulnerable people from falling into poverty.

semanticClimate annotation

Translations

- HI: सामाजिक सुरक्षा

WGII

societal transformations

A change in the fundamental attributes of human systems advanced by societal actors

Parent-term

- Transformation

semanticClimate annotation

Translations

- HI: सामाजिक परिवर्तन

WGII
social

socio-economic scenario

A scenario that describes a plausible future in terms of population, *gross domestic product (GDP)*, and other socio-economic factors relevant to understanding the implications of *climate change*.

Parent-term

- Scenario

semanticClimate annotation

Translations

- HI: सामाजिक-आर्थिक परिदृश्य

WGIII,WGII,WGI

socio-technical transitions

Where technological change is associated with social systems and the two are inextricably linked.

semanticClimate annotation

WGIII,WGII

soil carbon sequestration

Land management changes which increase the soil organic carbon content, resulting in a net removal of carbon dioxide (CO₂) from the atmosphere.

semanticClimate annotation

WGIII
SCS

soil erosion

The displacement of the soil by the action of water or wind.

Soil erosion is a major process of land degradation.

semanticClimate annotation



From Wikipedia Soil erosion is the denudation or wearing away of the upper layer of soil. It is a form of soil degradation. This natural process is caused by the dynamic activity of erosive agents, that is, water, ice (glaciers), snow, air (wind), plants, and animals (including humans).

Translations

- HI: मिट्टी का कटाव

WGII

soil moisture

Water stored in the soil in liquid or frozen form.

Root-zone soil moisture is of most relevance for plant activity.

semanticClimate annotation

From Wikipedia Soil moisture is the water content of the soil. It can be expressed in terms of volume or weight. Soil moisture measurement can be based on in situ probes (e.g., capacitance probes, neutron probes) or remote sensing methods.

Translations

- HI: मिट्टी की नमी

WGII,WGI

soil organic carbon

Carbon contained in *soil organic matter*.

semanticClimate annotation

Translations

- HI: मृदा जैविक कार्बन

WGIII,WGII

soil organic matter

The organic component of soil, comprising plant and animal residue at various stages of decomposition, and soil organisms.

semanticClimate annotation

From Wikipedia Soil organic matter (SOM) is the organic matter component of soil, consisting of plant and animal detritus at

various stages of decomposition, cells and tissues of soil microbes, and substances that soil microbes synthesize.

Translations

- HI: मृदा कार्बनिक पदार्थ

WGIII,WGII

soil temperature

The temperature of the soil.

This can be measured or modelled at multiple levels within the depth of the soil.

semanticClimate annotation

Translations

- HI: मृदा ताप

WGI

solar activity

General term collectively describing a variety of magnetic phenomena on the Sun such as *sunspots*, *faculae* (bright areas), and flares (emission of high-energy particles).

It varies on time scales from minutes to millions of years. The *solar cycle*, with an average duration of 11 years, is an example of a quasi-regular change in solar activity.

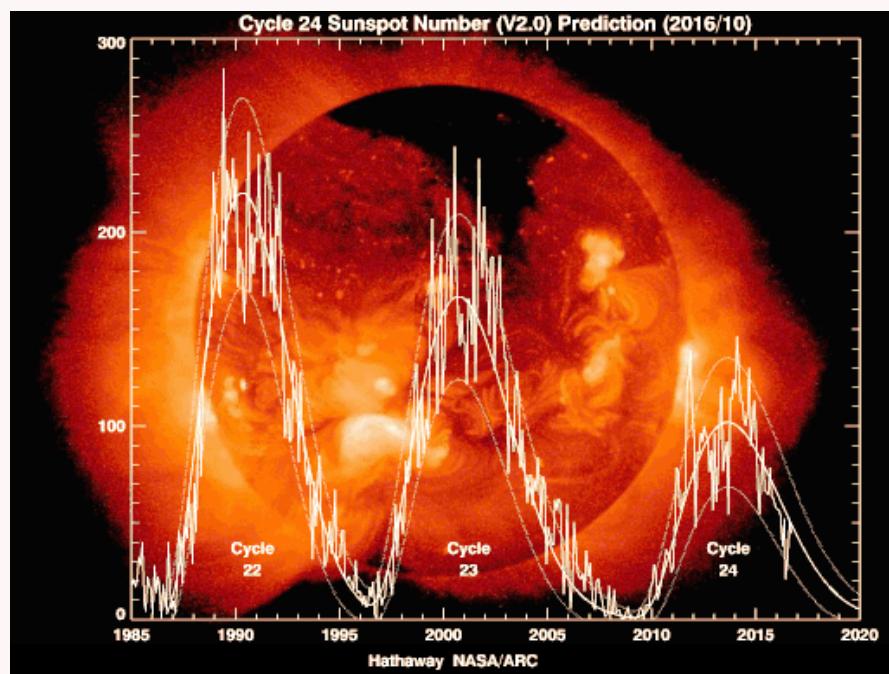
semanticClimate annotation

WGI

solar cycle

A quasi-regular modulation of *solar activity* with varying amplitude and a period of between 8 and 14 years.

semanticClimate annotation



From Wikipedia The solar cycle, also known as the solar magnetic activity cycle, sunspot cycle, or Schwabe cycle, is a nearly periodic 11-year change in the Sun's activity measured in terms of variations in the number of observed sunspots on the Sun's surface.

Translations

- HI: सौर चक्र

WGI
11-year

solar energy

Energy from the Sun.

Often the phrase is used to mean energy that is captured from solar radiation either as heat, as light that is converted into chemical energy by natural or artificial photosynthesis, or by photovoltaic panels and converted directly into electricity.

semanticClimate annotation



From Wikipedia Solar energy is radiant light and heat from the Sun that is harnessed using a range of technologies such as solar power to generate electricity, solar thermal energy (including solar water heating), and solar architecture.

Translations

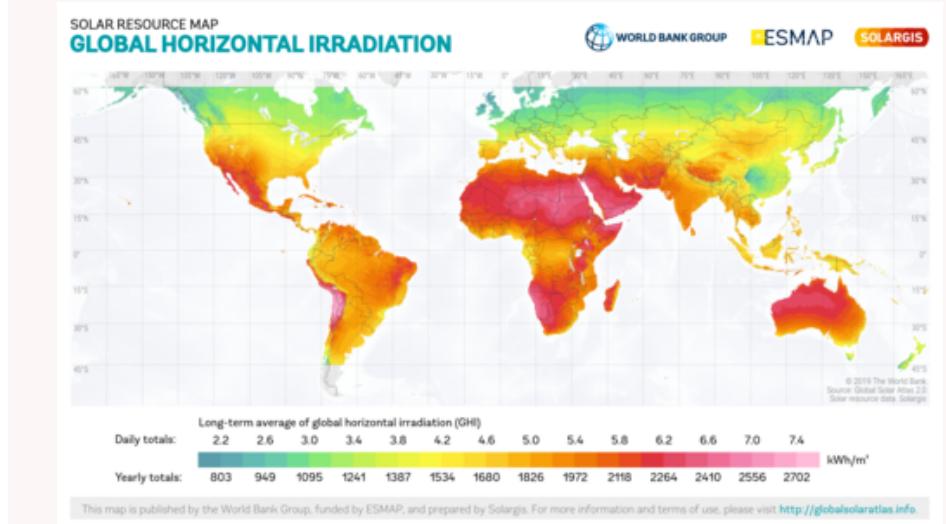
- HI: सौर ऊर्जा

WGIII

solar radiation

Electromagnetic radiation emitted by the Sun with a spectrum close to that of a black body with a temperature of 5770 K. The radiation peaks in visible wavelengths. When compared to the *terrestrial radiation* it is often referred to as shortwave radiation.

semanticClimate annotation



From Wikipedia Solar irradiance is the power per unit area (surface power density) received from the Sun in the form of electromagnetic radiation in the wavelength range of the measuring instrument. Solar irradiance is measured in watts per square metre (W/m^2) in SI units.

Translations

- HI: सौर विकिरण

WGI

solar radiation modification

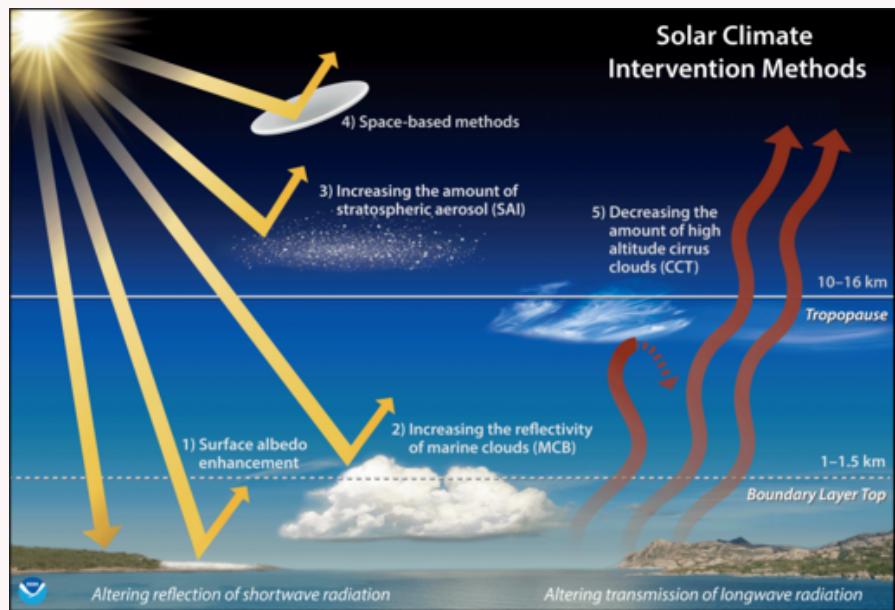
Refers to a range of radiation modification measures not related to greenhouse gas (GHG) mitigation that seek to limit global warming.

Most methods involve reducing the amount of incoming solar radiation reaching the surface, but others also act on the longwave radiation budget by reducing optical thickness and cloud lifetime.

Sub-terms

- Cirrus cloud thinning (CCT)
- Marine cloud brightening (MCB)
- Stratospheric aerosol injection (SAI)

semanticClimate annotation



From Wikipedia Solar geoengineering, or solar radiation modification (SRM), is a type of climate engineering in which sunlight (solar radiation) would be reflected back to outer space to limit or offset human-caused climate change.

Translations

- HI: सौर विकिरण संशोधन

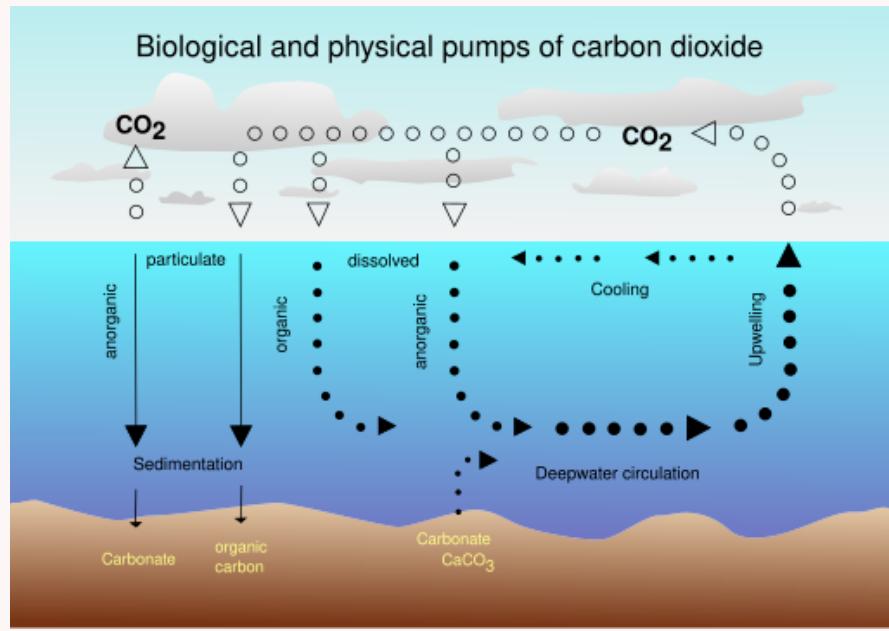
WGI,WGIII,WGII
SRM

solubility pump

A physicochemical process that transports dissolved inorganic carbon from the ocean's surface to its interior.

The solubility pump is primarily driven by the solubility of carbon dioxide (CO_2) (with more CO_2 dissolving in colder water) and the large-scale, thermohaline patterns of ocean circulation.

semanticClimate annotation



From Wikipedia

Translations

- HI: विलेयता पंप

WGI

solution space

The set of biophysical, cultural, socio-economic and political-institutional dimensions within which opportunities and constraints determine why, how, when and who acts to reduce climate risks.

Within these dimensions, there are 'hard' (unsurpassable) limits and 'soft'(surpassable) limits. The boundaries of the solution space are path dependent, contested and in constant flux (Haasnoot et. al. 2020).

semanticClimate annotation

WGII

source

Any process or activity which releases a greenhouse gas (GHG), an aerosol or a precursor of a GHG into the atmosphere (United Nations

Framework Convention on Climate Change (UNFCCC) Article 1.9 (UNFCCC, 1992)).

semanticClimate annotation

WGIII,WGII,WGI,SYR

South American monsoon

The South American monsoon (SAmerM) is a regional circulation characterized by inflow of low-level winds from the Atlantic to South America, including Brazil, Peru, Bolivia and northern Argentina, associated with the development of surface pressure gradients (and intense precipitation) during austral summer (December–January–February).

During September–October–November, areas of intense convection migrate from northwestern South America to the south. Associated with this regime, an upper-tropospheric anticyclone (a.k.a. the Bolivian High) forms over the Altiplano region during the monsoon onset. The SAmerM then retreats during March–April–May with a northeastward migration of the convection. Further details on how SAmerM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

semanticClimate annotation

WGI
SAmerM

South Pacific Convergence Zone

A band of low-level convergence, cloudiness and precipitation ranging from the west Pacific warm pool south-eastwards towards French Polynesia.

It is one of the most significant features of subtropical Southern Hemisphere *climate*. It shares some characteristics with the *Inter-tropical Convergence Zone (ITCZ)*, but is more extratropical in nature, especially east of the International Date Line.

semanticClimate annotation

From Wikipedia The South Pacific Convergence Zone (SPCZ), a reverse-oriented monsoon trough, is a band of low-level convergence, cloudiness and precipitation extending from the Western Pacific Warm Pool at the maritime continent south-eastwards towards French Polynesia and as far as the Cook Islands (160W, 20S).

Translations

- HI: दक्षिण प्रशांत अभिसरण क्षेत्र

WGI
SPCZ

South and South East Asian monsoon

The South and South East Asian monsoon (SAsiaM) is characterized by pronounced seasonal reversals of wind and precipitation.

The SAsiaM region extends across vast geographical areas and several countries, including India, Bangladesh, Nepal, Myanmar, Sri Lanka, Pakistan, Thailand, Laos, Cambodia, Vietnam and the Philippines. The SAsiaM starts in late May/early June and progresses towards the north-east, ending in late September/early October. During the core monsoon season, maxima of SAsiaM precipitation are located over the west coast, north-east and central north India, Myanmar and Bangladesh, whereas minima are located over north-west and south-eastern India, western Pakistan, and southeastern and northern Sri Lanka. Further details on how SAsiaM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

semanticClimate annotation

WGI
SAsiaM

Southern Annular Mode

The leading mode of *climate variability* of Southern Hemisphere sea-level pressure and geopotential height, which is associated with the strength and latitudinal shifts in the mid- to high-latitudes westerly wind belt.

The SAM is also known as the Antarctic Oscillation (AAO). A positive SAM phase is defined as lower-than-normal pressures over the polar regions and higher-than-normal pressures in the southern mid-latitudes, with a contraction towards Antarctica and strengthening of the westerly wind belt. The negative SAM phase exhibits positive high latitude pressure anomalies, negative mid-latitude pressure anomalies and a weaker westerly flow expanded towards the equator. See Section AIV.2.2 in Annex IV of the AR6 WGI report.

Parent-term

- Annular modes

semanticClimate annotation

WGI,WGII,WGIII
SAM

Southern Ocean

The *ocean* region encircling Antarctica that connects the Atlantic, Indian and Pacific Oceans together, allowing inter-ocean exchange.

This region is the main source of much of the deep water of the world's ocean and also provides the primary return pathway for this deep water to the surface (Marshall and Speer, 2012; Toggweiler and Samuels, 1995). The drawing up of deep waters and the subsequent transport into the ocean interior has major consequences for the global heat, nutrient and carbon balances, as well as the Antarctic *cryosphere* and marine *ecosystems*.

semanticClimate annotation

WGII

spatial and temporal scales

Climate may vary on a large range of spatial and temporal scales.

Spatial scales may range from local (less than 100 000 km²), through regional (100 000 to 10 million km²) to continental (10 to 100 million km²). Temporal scales may range from seasonal to geological (up to hundreds of millions of years).

semanticClimate annotation

WGII

specific humidity

The specific humidity specifies the ratio of the mass of water vapour to the total mass of moist air.

semanticClimate annotation

Translations

- HI: विशिष्ट आर्द्रता

WGI

spill-over effect

The effects of domestic or sector mitigation measures on other countries or sectors.

Spill-over effects can be positive or negative and include effects on trade, (carbon) leakage, transfer of innovations, and diffusion of environmentally sound technology and other issues.

semanticClimate annotation

WGIII

stadial or stade

A brief period of regional climatic cooling during a *glacial* or *interglacial* interval, often characterized by transient glacial advances.

Stadials are generally of short duration (hundreds to a few thousand years) compared to glacial or interglacial intervals (lasting many thousands to tens of thousands of years). One example of a regional stadial event is based on millennial scale cooling recorded by oxygen

isotope ratios in Greenland *ice cores*, the so called “Greenland Stadials” (Johnsen et al., 1992).

References

- Johnsen, S. J. et al. Irregular glacial interstadials recorded in a new Greenland ice core. *Nature* 359, 311–313 (1992).

semanticClimate annotation

WGI

standard

Set of rules or codes mandating or defining product performance (e.g., grades, dimensions, characteristics, test methods, and rules for use).

Product, technology or performance standards establish minimum requirements for affected products or technologies. Standards impose reductions in greenhouse gas (GHG) emissions associated with the manufacture or use of the products and/or application of the technology.

semanticClimate annotation

Translations

- HI: मानक

WGII

steric sea level change

Steric sea level change is caused by changes in ocean density and is composed of *thermosteric sea level change* and *halosteric sea level change*.

Parent-term

- *Sea level change (sea level rise/sea level fall)*

semanticClimate annotation

WGI

storm surge

The temporary increase, at a particular locality, in the height of the sea due to extreme meteorological conditions (low atmospheric pressure and/or strong winds).

The storm surge is defined as being the excess above the level expected from the tidal variation alone at that time and place.

semanticClimate annotation



[From Wikipedia](#)

Translations

- HI: बढ़ता तूफान

WGI,WGII

storm tracks

Originally, a term referring to the tracks of individual cyclonic weather systems, but now often generalized to refer to the main *regions* where the tracks of extratropical disturbances occur as sequences of low (cyclonic) and high (anticyclonic) pressure systems.

semanticClimate annotation

WGI

storyline

A way of making sense of a situation or a series of events through the construction of a set of explanatory elements.

Usually, it is built on logical or causal reasoning. In climate research, the term storyline is used both in connection to scenarios as related to a future trajectory of the climate and human systems and to a weather or climate event. In this context, storylines can be used to describe plural, conditional possible futures or explanations of a current situation, in contrast to single, definitive futures or explanations.

Sub-terms

- [Physical climate storyline](#)
- [Scenario storyline](#)

[semanticClimate annotation](#)

WGI,WGII,WGIII

stranded assets

Assets exposed to devaluations or conversion to 'liabilities' because of unanticipated changes in their initially expected revenues due to innovations and/or evolutions of the business context, including changes in public regulations at the domestic and international levels.

[semanticClimate annotation](#)

[From Wikipedia](#)

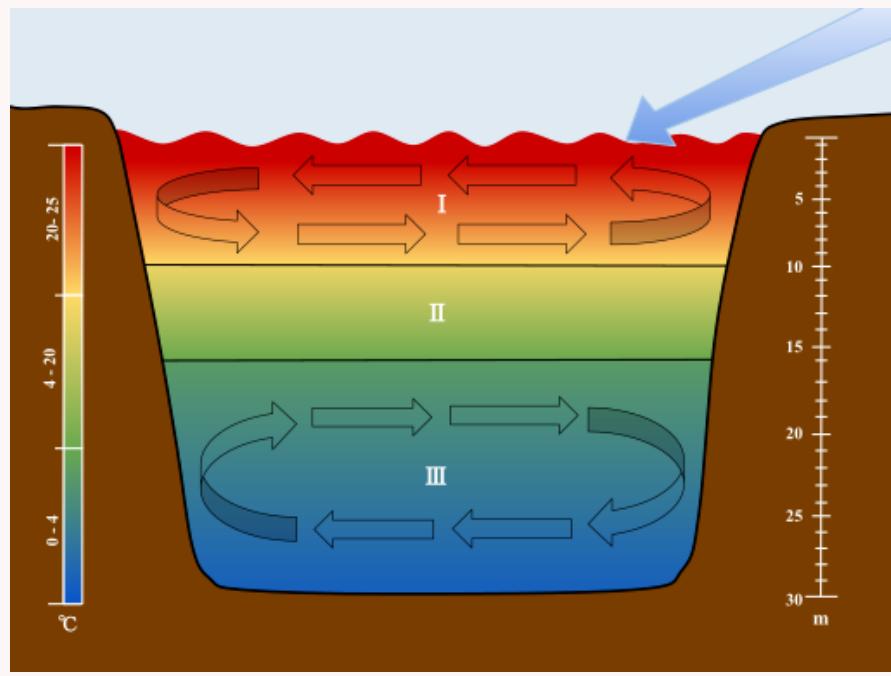
WGIII,WGII

stratification

Process of forming of layers of ([ocean](#)) water with different properties such as salinity, density and temperature that act as barriers for water mixing.

The strengthening of near-surface stratification generally results in warmer surface waters, decreased oxygen levels in deeper water and intensification of [ocean acidification \(OA\)](#) in the upper ocean.

semanticClimate annotation



From Wikipedia Stratification in water is the formation in a body of water of relatively distinct and stable layers by density. It occurs in all water bodies where there is stable density variation with depth. Stratification is a barrier to the vertical mixing of water, which affects the exchange of heat, carbon, oxygen and nutrients.

Translations

- HI: स्तर-विन्यास

WGII,WGI

stratosphere

The highly stratified region of the atmosphere above the *tropopause*, extending to about 50 km altitude.

semanticClimate annotation

From Wikipedia

Translations

- HI: समतापमण्डल

WGI

stratosphere-troposphere exchange

Stratosphere-troposphere exchange (STE) is understood as the flux of air or trace constituents across the tropopause, including both directions: the stratosphere to troposphere transport (STT) and troposphere to stratosphere transport (TST).

STE is one of the key factors controlling the budgets of ozone, water vapour and other substances in both the *troposphere* and the lower *stratosphere*.

semanticClimate annotation

WGI
STE

stratospheric aerosol injection

One of several solar radiation modification (SRM) approaches to increase the planetary albedo.

In the approach, it is proposed to inject highly reflective aerosols such as sulphates into the lower stratosphere. This is expected to increase the fraction of solar radiation deflected to space resulting in a planetary cooling.

Parent-term

- [Solar radiation modification \(SRM\)](#)

semanticClimate annotation

WGI
SAI

stratospheric ozone

Stratospheric ozone describes the *3)ozone (O₃)* that resides in the *stratosphere*, the region of the *atmosphere* which exists between 10 and 50 kilometres above the surface of the earth.

Ninety percent of total-column ozone resides in the stratosphere.

semanticClimate annotation

WGI

stratospheric polar vortex

A large-scale region of cold air poleward of approximately 60 degrees that is contained by a strong westerly jet from the tropopause (8–10 km) to the stratopause (50–60 km) and that forms in each hemisphere during the winter half-year.

Planetary waves can temporarily disrupt the vortex, producing easterly winds and rapid warming over polar regions in the stratosphere, and leading to substantial weakening or breakdown of the vortex.

semanticClimate annotation

WGI

stratospheric sounding unit

A three-channel infrared sounder on operational U.S.

National Oceanic and Atmospheric Administration (NOAA) polar-orbiting satellites. The three channels are used to determine profiles of temperature in the *stratosphere* (AMS, 2021).

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from: <http://glossary.ametsoc.org>.

semanticClimate annotation

WGI
SSU

streamflow

Water flow within a river channel, for example, expressed in m³ s⁻¹.

A synonym for river discharge.

semanticClimate annotation

WGII, WGII

stressors

Events and trends, often not climate-related, that have an important effect on the system exposed and can increase vulnerability to climate-related risk.

semanticClimate annotation

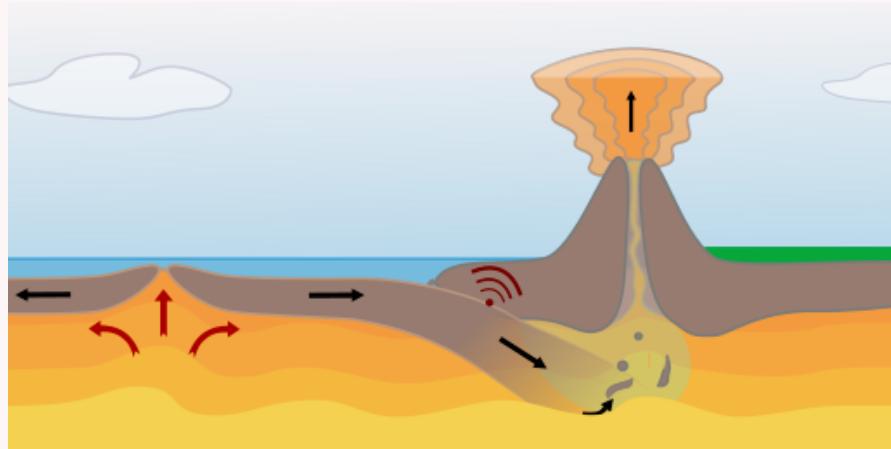
WGII

subduction

Ocean process in which surface waters enter the ocean interior from the surface mixed layer through *Ekman pumping* and lateral *advection*.

The latter occurs when surface waters are advected to a *region* where the local *surface layer* is less dense and therefore must slide below the surface layer, usually with no change in density.

semanticClimate annotation



From Wikipedia Subduction is a geological process in which the oceanic lithosphere and some continental lithosphere is recycled into the Earth's mantle at convergent boundaries.

Translations

- HI: निम्नस्थलन

WGI

subnational actors

State/provincial, regional, metropolitan and local/municipal governments as well as non-party stakeholders, such as civil society, the private sector, cities and other subnational authorities, local communities and indigenous peoples.

semanticClimate annotation

WGIII

sudden stratospheric warming

A phenomena of rapid warming in the *stratosphere* at high latitudes (sometimes more than 50°C in 1–2 days) that can cause breakdown of *stratospheric polar vortices*.

semanticClimate annotation

From Wikipedia A sudden stratospheric warming (SSW) is an event in which polar stratospheric temperatures rise by several tens of kelvins (up to increases of about 50 °C (90 °F)) over the course of a few days.

WGI
SSW

sufficiency

A set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries.

semanticClimate annotation

WGIII

sulphur hexafluoride

SF₆, a greenhouse gas (GHG), is mainly used in heavy industry to insulate high-voltage equipment and to assist in the manufacturing of cable-cooling systems and semiconductors.

semanticClimate annotation

From Wikipedia

WGI

SF₆

sunspots

Dark areas on the Sun where strong magnetic fields reduce the convection, causing a temperature reduction of about 1500 K compared to the surrounding regions.

The number of sunspots is higher during periods of higher solar activity and varies in particular with the solar cycle.

semanticClimate annotation

WGI

supply-side measures

Policies and programmes for influencing how a certain demand for goods and/or services is met.

In the energy sector, supply-side mitigation measures aim at reducing the amount of greenhouse gas emissions emitted per unit of energy service produced.

Parent-term

• Demand- and supply-side measures

semanticClimate annotation

WGIII

surface energy budget

comprises the exchanges of heat at the surface of the Earth associated with both radiative and non-radiative processes.

Typical units: W m⁻².

Parent-term

- [Earth's energy budget](#)

semanticClimate annotation

Translations

- HI: सतही ऊर्जा बजट

WGI

surface mass balance

Surface mass balance refers to the difference between surface accumulation and surface ablation.

semanticClimate annotation

Translations

- HI: सतह द्रव्यमान संतुलन

WGI

SMB

surprises

A class of risk that can be defined as low-likelihood but well-understood events and events that cannot be predicted with current understanding (see Section 1.4.4.3 in AR6 WGI Chapter 1).

semanticClimate annotation

WGI

sustainability

A dynamic process that guarantees the persistence of natural and human systems in an equitable manner.

semanticClimate annotation

From Wikipedia

Translations

- HI: संधारणीयता

WGIII,WGII

Sustainable Development Goals

The 17 global goals for development for all countries established by the United Nations through a participatory process and elaborated in the 2030 Agenda for Sustainable Development, including ending poverty and hunger; ensuring health and well-being, education, gender equality, clean water and energy, and decent work; building and ensuring resilient and sustainable infrastructure, cities and consumption; reducing inequalities; protecting land and water ecosystems; promoting peace, justice and partnerships; and taking urgent action on climate change.

semanticClimate annotation



SUSTAINABLE DEVELOPMENT GOALS

From Wikipedia The Sustainable Development Goals (SDGs) or Global Goals are a collection of seventeen interlinked objectives designed to serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future.

Translations

- HI: टिकाऊ विकास लक्ष्य

WGIII,WGII
SDGs

sustainable development

Development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987) and balances social, economic and environmental concerns.

semanticClimate annotation

From Wikipedia

Translations

- HI: टिकाऊ विकास

WGIII,WGII
SD

sustainable development pathways

Trajectories aimed at attaining the *Sustainable Development Goals (SDGs)* in the short term and the goals of *sustainable development* in the long term.

In the context of *climate change*, such pathways denote trajectories that address social, environmental and economic dimensions of sustainable development, *adaptation* and *mitigation*, and *transformation*, in a generic sense or from a particular methodological perspective such as *integrated assessment models* and *scenario simulations*.

Parent-term

- Pathways

semanticClimate annotation

WGII
SDPs

sustainable forest management

The stewardship and use of *forests* and forest lands in a way, and at a rate, that maintains their *biodiversity*, productivity, regeneration capacity, vitality and their potential to fulfil, now and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other *ecosystems* (Forest Europe, 1993).

semanticClimate annotation

From Wikipedia Sustainable forest management (SFM) is the management of forests according to the principles of sustainable development. Sustainable forest management has to keep the balance between three main pillars: ecological, economic and socio-cultural.

WGIII,WGII

sustainable intensification

Increasing yields from the same area of land while decreasing negative environmental impacts of agricultural production and increasing the provision of environmental services (CGIAR, 2019).

[Note: This definition is based on the concept of meeting demand from a finite land area, but it is scale-dependent. Sustainable intensification at a given scale (e.g., global or national) may require a decrease in production intensity at smaller scales and in particular places (often associated with previous, unsustainable, intensification) to achieve sustainability (Garnett et al., 2013).]

semanticClimate annotation

WGIII
of agriculture

sustainable land management

The stewardship and use of land resources, including soils, water, animals and plants, to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions.

semanticClimate annotation

WGIII,WGII

swash

Vertical displacement up the shore-face induced by individual waves.

semanticClimate annotation

WGI

sympagic

Organisms and habitats related to the sea ice, analogous to pelagic (water column) or benthic (seafloor).

semanticClimate annotation

[From Wikipedia](#)

WGII

Systems of Innovation

The set of public and private sector organisations (i.e., formally organised entities such as firms and universities; 'actors') and *institutions*, whose activities and interactions generate, modify and deploy new technologies.

The SI approach has been used to understand and analyse innovation at the national, regional, and technological levels, and in transnational contexts (Lundvall, 1988, 1992).

References

- Lundvall, B., 1988: Innovation as an interactive process: from user-producer interaction to the national system of innovation. Technical Change and Economic Theory, G. Dosi, C. Freeman, R. Nelson, G. Silverberg, and L. Soete, Eds., Pinter Publishers.
- Lundvall, B., 1992: National Systems of Innovation: Toward a Theory of Innovation and Interactive Learning. B. Lundvall, Ed. Pinter Publishers, 342 pp.

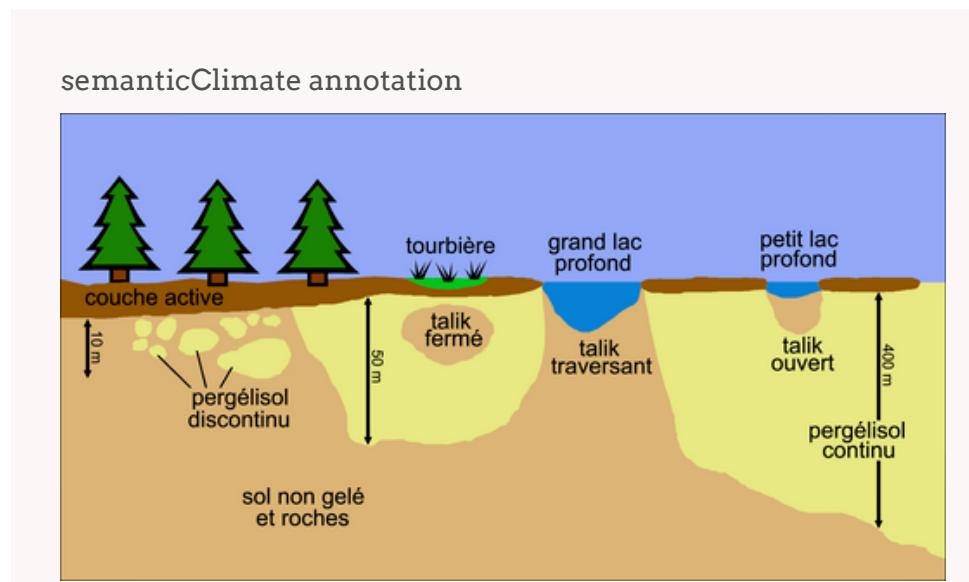
semanticClimate annotation

WGIII
SI

T

talik

A layer or body of unfrozen ground in a *permafrost* area due to a local anomaly in thermal, hydrological, hydrogeological or hydrochemical conditions (IPA, 2005).



From Wikipedia A talik is a layer of year-round unfrozen ground that lies in permafrost areas. In regions of continuous permafrost, taliks often occur underneath shallow thermokarst lakes and rivers, where the deep water does not freeze in winter and thus the soil underneath does not freeze either.

WGI

technical potential

The mitigation potential constrained by biogeophysical limits as well as availability of technologies and practices.

Quantification of technical potentials takes into account primarily technical considerations, but social, economic and/or environmental considerations are occasionally also included, if these represent strong barriers for the deployment of an option.

Parent-term

- Mitigation potential

semanticClimate annotation

WGIII,WGI

technology deployment

The act of bringing technology into effective application, involving a set of actors and activities to initiate, facilitate and/or support its implementation.

semanticClimate annotation

WGIII

technology diffusion

The spread of a technology across different groups users/markets over time.

semanticClimate annotation

WGIII

technology transfer

The exchange of knowledge, hardware and associated software, money and goods among stakeholders, which leads to the spread of technology for adaptation or mitigation.

The term encompasses both diffusion of technologies and technological cooperation across and within countries.

semanticClimate annotation

WGIII

teleconnection

Association between *climate* variables at widely separated, geographically fixed locations related to each other through physical processes and oceanic and/or atmospheric dynamical pathways.

Teleconnections can be caused by several climate phenomena, such as Rossby wave-trains, mid-latitude jet and storm track displacements, fluctuations of the *Atlantic Meridional Overturning Circulation* (AMOC), fluctuations of the Walker circulation, etc. They can be initiated by *modes of climate variability*, thus providing the development of remote climate anomalies at various temporal lags.

semanticClimate annotation

WGI,WGIII,WGII

teleconnection pattern

Spatial structure of climate *anomalies* that are linked to each other through *teleconnection* processes or that are the large-scale fingerprint of *modes of climate variability*.

Teleconnection patterns can be visualized using correlation and/or regression maps of *climate* variables with some *climate indices* (i.e., those derived from the temporal variation of the main modes of climate variability). They can also be obtained from principal component analysis, singular value decomposition/maximum covariance analysis, clustering based on spatial recurrence criteria, etc. See also Section Atlas.3.1 of the AR6 WGI report and *Teleconnection*.

semanticClimate annotation

WGI

temperature overshoot

Exceedance of a specified global warming level, followed by a decline to or below that level during a specified period of time (e.g., before 2100).

Sometimes the magnitude and likelihood of the overshoot is also characterised. The overshoot duration can vary from one pathway to the next, but in most overshoot pathways in the literature and as referred to as overshoot pathways in the AR6, the overshoot occurs over a period of at least one decade and up to several decades.

semanticClimate annotation

WGI, WGIII, WGII

terrestrial radiation

Radiation emitted by the Earth's surface, the *atmosphere* and clouds.

It is also known as thermal infrared or longwave radiation and is to be distinguished from the near-infrared radiation that is part of the solar spectrum. Infrared radiation, in general, has a distinctive range of wavelengths (spectrum) longer than the wavelength of the red light in the visible part of the spectrum. The spectrum of terrestrial radiation is almost entirely distinct from that of shortwave or *solar radiation* because of the difference in temperature between the Sun and the Earth–atmosphere system.

semanticClimate annotation

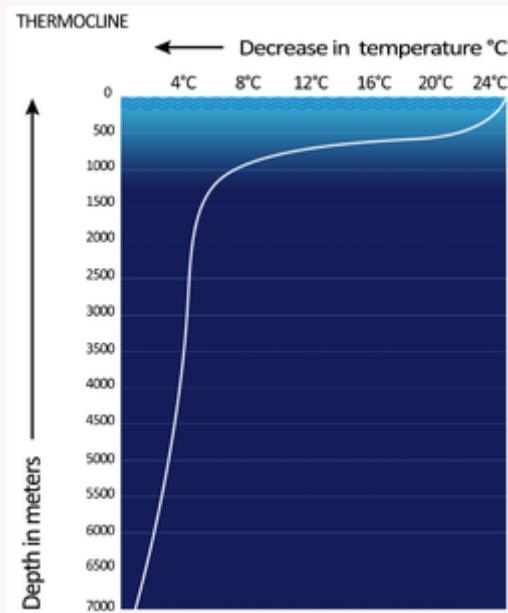
WGI

thermocline

The layer of maximum vertical temperature gradient in the ocean, lying between the surface ocean and the abyssal ocean.

In subtropical regions, its source waters are typically surface waters at higher latitudes that have subducted (see *Subduction*) and moved equatorward. At high latitudes, it is sometimes absent, replaced by a *halocline*, which is a layer of maximum vertical salinity gradient.

semanticClimate annotation



From Wikipedia A thermocline (also known as the thermal layer or the metalimnion in lakes) is a distinct layer based on temperature within a large body of fluid (e.g. water, as in an ocean or lake; or air, e.g. an atmosphere) with a high gradient of distinct temperature differences associated with depth. In the ocean, the thermocline divides the upper mixed layer from the calm deep water below.

WGI

thermokarst

Process by which characteristic landforms result from thawing of ice-rich *permafrost* or melting of massive ice (IPA, 2005).

References

- Multi-language glossary of permafrost and related ground ice terms, version 2.0 (revised 2005), R.O van Everdingen editor. University of Calgary, Canada.
https://globalcryospherewatch.org/reference/glossary_docs/Glossary_of_Permafrost_and_Ground-Ice_IPA_2005.pdf

semanticClimate annotation



From Wikipedia Thermokarst is a type of terrain characterised by very irregular surfaces of marshy hollows and small hummocks formed as ice-rich permafrost thaws. The land surface type occurs in Arctic areas, and on a smaller scale in mountainous areas such as the Himalayas and the Swiss Alps.

WGI

thermosteric sea level change

Thermosteric sea level change (where thermosteric sea level rise may also be referred to as thermal expansion) occurs as a result of changes in ocean temperature: increasing temperature reduces ocean density and increases the volume per unit of mass.

Parent-term

- Sea level change (sea level rise/sea level fall)

semanticClimate annotation

WGI

tide gauge

A device at a coastal or deep-sea location that continuously measures the level of the sea with respect to the adjacent land.

Time averaging of the sea level so recorded gives the observed secular changes of the *relative sea level*.

semanticClimate annotation



From Wikipedia

WGI

tier

In the context of the IPCC Guidelines for National Greenhouse Gas Inventories, a tier represents a level of methodological complexity.

Usually three tiers are provided. Tier 1 is the basic method, Tier 2 intermediate and Tier 3 most demanding in terms of complexity and data requirements. Tiers 2 and 3 are sometimes referred to as higher-tier methods and are generally considered to be more accurate (IPCC, 2019).

semanticClimate annotation

WGII

time of emergence

Time when a specific *anthropogenic* signal related to *climate change* is statistically detected to emerge from the background noise of natural *climate variability* in a *reference period*, for a specific *region* (Hawkins and Sutton, 2012).

semanticClimate annotation

WGI
ToE

tipping element

A component of the Earth system that is susceptible to a *tipping point*.

semanticClimate annotation

WGI,WGII

tipping point

A critical threshold beyond which a system reorganises, often abruptly and/or irreversibly.

semanticClimate annotation

WGI,WGIII,WGII

top-of-atmosphere energy budget

Comprises the energy fluxes associated with incoming solar radiation, reflected solar radiation and emitted thermal radiation.

Typical units: W m⁻².

Parent-term

- [Earth's energy budget](#)

semanticClimate annotation

WGI

total alkalinity

Total Alkalinity (AT) is a measurable parameter of the seawater acid–base system which, when expressed in micromoles per kilogram of seawater, is a conservative variable both on mixing and for changes in temperature and/or pressure.

Changes in total alkalinity in the oceans can result from a variety of biogeochemical processes that affect the acid–base composition of the seawater itself. However, its value is not affected by the exchange of carbon dioxide gas between seawater and the atmosphere. Measurements of total alkalinity can thus be used to help study these biogeochemical processes and can also be used to help calculate the state of the seawater acid–base system. Total alkalinity is most commonly measured using an acidimetric titration technique that determines how much acid is required to titrate a seawater sample to a specified equivalence point.

semanticClimate annotation

WGI

total carbon budget

Refers to two concepts in the literature: (i) an assessment of carbon cycle sources and sinks on a global level, through the synthesis of evidence for fossil fuel and cement emissions, emissions and removals associated with land use and land-use change, ocean and natural land sources and sinks of carbon dioxide (CO₂), and the resulting change in atmospheric

CO₂ concentration. This is referred to as the total carbon budget when expressed starting from the pre-industrial period, and as the remaining carbon budget when expressed from a recent specified date.

semanticClimate annotation

WGIII,WGI

total solar irradiance

The total amount of *solar radiation* in watts per square metre received outside the Earth's *atmosphere* on a surface normal to the incident radiation, and at the Earth's mean distance from the Sun.

Reliable measurements of solar radiation can only be made from space, and the precise record extends back only to 1978. Variations of a few tenths of a percent are common, usually associated with the passage of *sunspots* across the solar disk. The *solar cycle* variation of TSI is of the order of 0.1% (AMS, 2021).

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from: <http://glossary.ametsoc.org>.

semanticClimate annotation

WGI
TSI

total water level

Extreme total water level (ETWL) is the Extreme still water level (ESWL) plus wave setup.

When considering coastal impacts, swash is also important, and Extreme coastal water level (ECWL) is used.

semanticClimate annotation

WGI

trace gas

A minor constituent of the *atmosphere*, next to nitrogen and oxygen that together make up 99 % of all volume.

The most important trace gases contributing to the greenhouse effect are *carbon dioxide (CO₂)*, *ozone (O₃)*, *methane (CH₄)*, *nitrous oxide (N₂O)*, *perfluorocarbons (PFCs)*, *chlorofluorocarbons (CFCs)*, *hydrofluorocarbons (HFCs)*, *sulphur hexafluoride (SF₆)* and water vapour (H₂O).

semanticClimate annotation

WGI

trade-off

A competition between different objectives within a decision situation, where pursuing one objective will diminish achievement of other objective(s).

A trade-off exists when a policy or measure aimed at one objective (e.g., reducing greenhouse gas emissions) reduces outcomes for other objective(s) (e.g., biodiversity conservation, energy security) due to adverse side effects, thereby potentially reducing the net benefit to society or the environment.

semanticClimate annotation

WGIII,WGII

traditional biomass

The combustion of wood, charcoal, agricultural residues and/or animal dung for cooking or heating in open fires or in inefficient stoves as is common in low-income countries.

Parent-term

- *Biomass*

semanticClimate annotation

WGIII

transformation

A change in the fundamental attributes of natural and human systems.

Sub-terms

- Deliberate transformations
- Societal (social) transformations

semanticClimate annotation

WGIII,WGII

transformation pathways

Trajectories describing consistent sets of possible futures of greenhouse gas (GHG) emissions, atmospheric concentrations, or global mean surface temperatures implied from mitigation and adaptation actions associated with a set of broad and irreversible economic, technological, societal, and behavioural changes.

This can encompass changes in the way energy and infrastructure are used and produced, natural resources are managed and institutions are set up and in the pace and direction of technological change.

Parent-term

- Pathways

semanticClimate annotation

WGIII

transformational adaptation

Adaptation that changes the fundamental attributes of a social-ecological system in anticipation of climate change and its impacts.

Parent-term

- Adaptation

semanticClimate annotation

WGIII,WGII

transformative change

A system-wide change that requires more than technological change through consideration of social and economic factors that, with technology, can bring about rapid change at scale.

semanticClimate annotation

WGII

transient climate response

The surface temperature response for the hypothetical scenario in which atmospheric *carbon dioxide (CO₂)* increases at 1% yr⁻¹ from *pre-industrial* to the time of a doubling of atmospheric CO₂ concentration (year 70).

Parent-term

- *Climate sensitivity*

semanticClimate annotation

WGI,WGIII
TCR

Transient climate response to cumulative CO₂ emissions

The transient surface temperature change per unit cumulative *carbon dioxide (CO₂)* emissions, usually 1000 GtC.

TCRE combines both information on the airborne fraction of cumulative CO₂ emissions (the fraction of the total CO₂ emitted that remains in the *atmosphere*, which is determined by *carbon cycle* processes) and on the *transient climate response (TCR)*.

Parent-term

- Climate sensitivity

semanticClimate annotation

WGIII,WGI
TCRE

transition

The process of changing from one state or condition to another in a given period of time.

Transition can occur in individuals, firms, cities, regions and nations, and can be based on incremental or transformative change.

Sub-terms

- Just transitions

semanticClimate annotation

WGIII,WGII

tree line

The upper limit of tree growth in mountains or at high latitudes.

It is more elevated or more poleward than the forest line.

semanticClimate annotation



From Wikipedia The tree line is the edge of a habitat at which trees are capable of growing. It is found at high elevations and high latitudes. Beyond the tree line, trees cannot tolerate the environmental conditions (usually low temperatures, extreme snowpack, or associated lack of available moisture)

Translations

- HI: वृक्ष रेखा

WGII

tree rings

Concentric rings of secondary wood evident in a cross section of the stem of a woody plant.

The difference between the dense, small-celled late wood of one season and the wide-celled early wood of the following spring enables the age of a tree to be estimated, and the ring widths or density can be related to climate parameters such as temperature and precipitation.

semanticClimate annotation



From Wikipedia

WGI

trend estimates uncertainty

Uncertainty arising from data fitting to a time-series with potential non-linear and autoregressive character.

semanticClimate annotation

WGI

Tropical Atlantic Variability

A generic term to describe the *climate variability* of the tropical Atlantic which is dominated at interannual to decadal time scales by two main climate modes: the *Atlantic Zonal Mode (AZM)* and the *Atlantic Meridional Mode (AMM)*.

The Atlantic Zonal Mode, also commonly referred to as the Atlantic Niño or Atlantic equatorial mode, is associated with *sea surface temperature*

anomalies near the equator, peaking in the eastern basin, while the Atlantic meridional mode is characterized by an inter-hemispheric gradient of sea surface temperature and wind anomalies. Both modes are associated with significant *teleconnections* over Africa and South America.

Sub-terms

- [Atlantic Meridional Mode \(AMM\)](#)
- [Atlantic Zonal Mode \(AZM\)](#)

semanticClimate annotation

WGI
TAV

tropical cyclone

The general term for a strong, cyclonic-scale disturbance that originates over tropical oceans.

Distinguished from weaker systems (often named tropical disturbances or depressions) by exceeding a threshold wind speed. A tropical storm is a tropical cyclone with one-minute average surface winds between 18 and 32 m s^{-1} . Beyond 32 m s^{-1} , a tropical cyclone is called a hurricane, typhoon or cyclone, depending on geographic location.

semanticClimate annotation



From Wikipedia A tropical cyclone is a rapidly rotating storm system characterized by a low-pressure center, a closed low-level atmospheric circulation, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain and squalls. Depending on its location and strength, a tropical cyclone is referred to by different names, including hurricane (/hərɪkən, -keɪn/), typhoon (/taɪ'fu:n/), tropical storm, cyclonic storm, tropical depression, or simply cyclone.

Translations

- HI: ઉણકટિબંધીય ચક્રવાત

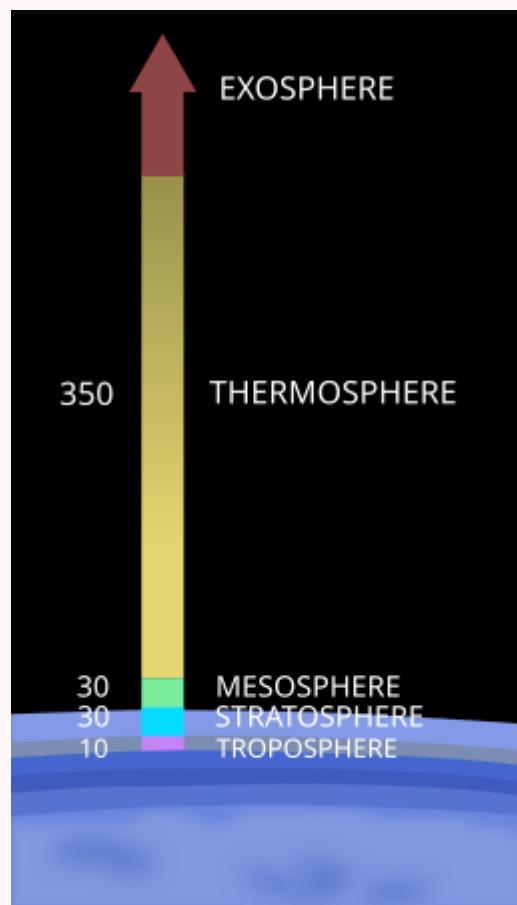
WGII,WGI

tropopause

The boundary between the *troposphere* and the *stratosphere*.

It ranges from 8–9 km at high latitudes to 15–16 km in the tropics.

semanticClimate annotation



From Wikipedia

WGI

troposphere

The lowest part of the atmosphere, below the *tropopause*, where clouds and weather phenomena occur.

In the troposphere, temperatures generally decrease with height.

semanticClimate annotation



From Wikipedia The troposphere is the lowest layer of the atmosphere of Earth. It contains 75% of the total mass of the planetary atmosphere and 99% of the total mass of water vapor and aerosols, and is where most weather phenomena occur.

Translations

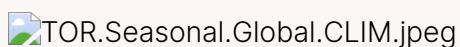
- HI: ક્રોમસણદલ

WGI

tropospheric ozone

Tropospheric ozone acts as a greenhouse gas.

semanticClimate annotation



From Wikipedia

WGI

tsunami

A wave, or train of waves, produced by a disturbance such as a submarine earthquake displacing the sea floor, a landslide, a volcanic eruption or an asteroid impact.

semanticClimate annotation



From Wikipedia A tsunami (/t)su'na:mi, (t)su'-/ (t)soo-NAH-mee, (t)suu-;[1][2][3][4] from Japanese: 津波 , lit. 'harbour wave',[5] pronounced [tsunami]) is a series of waves in a water body caused by the displacement of a large volume of water, generally in an ocean or a large lake. Earthquakes, volcanic eruptions and other underwater explosions (including detonations, landslides, glacier calvings, meteorite impacts and other disturbances) above or below water all have the potential to generate a tsunami.

Translations

- HI: सूनामी

WGII

tundra

A treeless biome characteristic of polar and alpine regions.

semanticClimate annotation

SemanticClimate additions

[Wikipedia](#)



WGI,WGII

turnover time

(also called global atmospheric lifetime) is the ratio of the mass M of a reservoir (e.g., a gaseous compound in the atmosphere) and the total rate of removal S from the reservoir: $T = M/S$.

For each removal process, separate turnover times can be defined. In soil carbon biology, this is referred to as mean residence time.

Parent-term

- Lifetime

semanticClimate annotation

WGI
T

typological regions

Regions of the Earth that share one or more specific features (known as 'typologies'), such as geographic location (e.g., coastal), physical processes (e.g., *monsoons*), and biological (e.g., coral reefs, tropical forests), geological (e.g., mountains) or *anthropogenic* (e.g., megacities) formation, and for which it is useful to consider the common *climate* features. Typological regions are smaller than climatic zones (e.g., a mountain region) and can be discontinuous (e.g., a group of megacities affected by the *urban heat island* effect, or monsoon regions).

semanticClimate annotation

WGI

U

uncertainty

A state of incomplete knowledge that can result from a lack of information or from disagreement about what is known or even knowable.

It may have many types of sources, from imprecision in the data to ambiguously defined concepts or terminology, incomplete understanding of critical processes or uncertain projections of *human behaviour*. Uncertainty can therefore be represented by quantitative measures (e.g., a probability density function) or by qualitative statements (e.g., reflecting the judgement of a team of experts) (Moss and Schneider, 2000; IPCC, 2004; Mastrandrea et al., 2010).

Sub-terms

- Deep uncertainty
- Interpolation uncertainty
- Sampling uncertainty

semanticClimate annotation

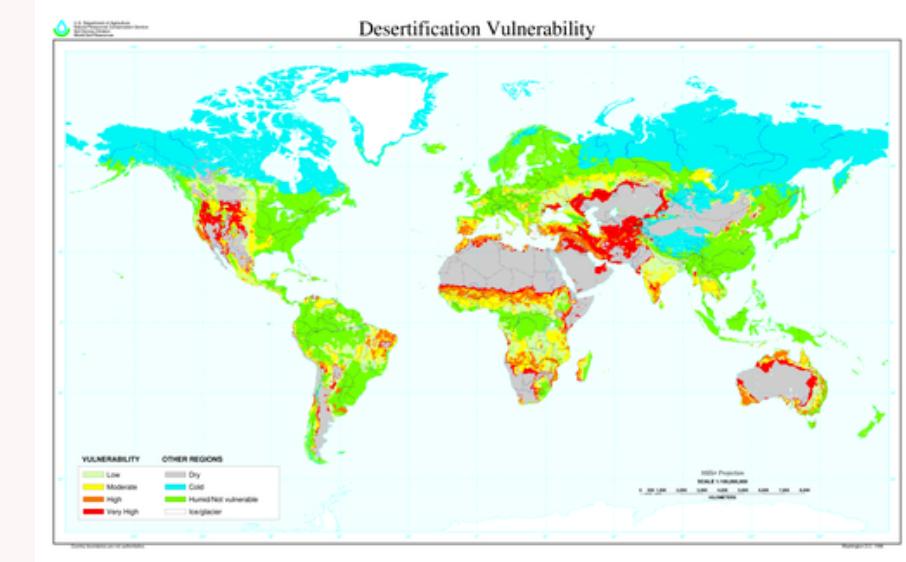
WGI, WGIII, WGII

United Nations Convention to Combat Desertification

A legally binding international agreement linking environment and development to sustainable land management, established in 1994.

The Convention's objective is 'to combat desertification and mitigate the effects of drought in countries experiencing drought and/or desertification'. The Convention specifically addresses the arid, semi-arid and dry sub-humid areas, known as the drylands, and has a particular focus on Africa. As of September 2020, the UNCCD had 197 Parties.

semanticClimate annotation



From Wikipedia

Translations

- HI: मरुस्थलीय से लड़ने के लिए अभियान

WGIII
UNCCD

United Nations Framework Convention on Climate Change

The UNFCCC was adopted in May 1992 and opened for signature at the 1992 Earth Summit in Rio de Janeiro.

It entered into force in March 1994 and, as of September 2020, had 197 Parties (196 States and the European Union). The Convention's ultimate objective is the 'stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system' (UNFCCC, 1992). The provisions of the Convention are pursued and implemented by two further treaties: the Kyoto Protocol and the Paris Agreement.

semanticClimate annotation



United Nations
Framework Convention on
Climate Change

From Wikipedia

Translations

- HI: संयुक्त राष्ट्र जलवायु परिवर्तन रूपरेखा सम्मेलन

WGIII,WGII,WGI
UNFCCC

uptake

The transfer of substances (such as carbon) or energy (e.g., heat) from one compartment of a system to another; for example, in the Earth system from the atmosphere to the ocean or to the land.

semanticClimate annotation

WGIII,WGII,WGI

upwelling region

A region of an ocean where cold, typically nutrient-rich waters well up from the deep ocean.

semanticClimate annotation

WGI,WGII

Urban Systems

Urban systems refer to two interconnected systems-first, the comprehensive collections of city elements with multiple dimensions and characteristics: a) encompass physical, built, socioeconomic-technical, political, and ecological subsystems; b) integrate social agent/constituency/processes with physical structure and processes; and c) exist within broader spatial and temporal scales and governance and institutional contexts; and second, the global system of cities and towns.

semanticClimate annotation

WGII,WGIII

urban

The categorisation of areas as 'urban' by government statistical departments is generally based either on population size, population density, economic base, provision of services, or some combination of the above.

Urban systems are networks and nodes of intensive interaction and exchange including capital, culture, and material objects. Urban areas exist on a continuum with rural areas and tend to exhibit higher levels of complexity, higher populations and population density, intensity of capital investment, and a preponderance of secondary (processing) and tertiary (service) sector industries. The extent and intensity of these features varies significantly within and between urban areas. Urban places and systems are open with much movement and exchange between more rural areas as well as other urban regions. Urban areas can be globally interconnected facilitating rapid flows between them – of capital investment, of ideas and culture, human migration, and disease.

semanticClimate annotation

WGII,WGIII

urban and peri-urban agriculture

The cultivation of crops and rearing of animals for food and other uses within and surrounding the boundaries of cities, including fisheries and forestry (EPRS, 2014).

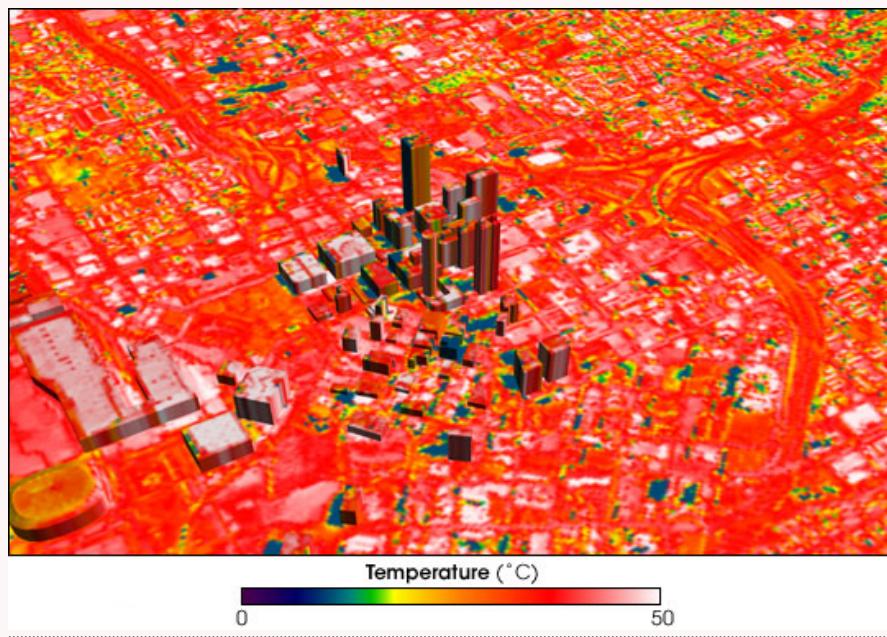
semanticClimate annotation

WGII

urban heat island

The relative warmth of a city compared with surrounding rural areas, associated with heat trapping due to land use, the configuration and design of the built environment, including street layout and building size, the heat-absorbing properties of urban building materials, reduced ventilation, reduced greenery and water features, and domestic and industrial heat emissions generated directly from human activities.

semanticClimate annotation



From Wikipedia

WGI,WGIII

UHI

urbanisation

Urbanisation is a multi-dimensional process that involves at least three simultaneous changes: (i) land use change: transformation of formerly rural settlements or natural land into urban settlements; (ii) demographic change: a shift in the spatial distribution of a population from rural to urban areas; and (iii) infrastructure change: an increase in provision of infrastructure services including electricity, sanitation, etc.

Urbanisation often includes changes in lifestyle, culture, and behaviour, and thus alters the demographic, economic, and social structure of both urban and rural areas. (Stokes and Seto 2019; Seto et al. 2014; UNDESA 2018)

References

- Stokes, E. C. and K. Seto. 2019: Characterizing and measuring urban landscapes for sustainability. in: Environmental Research Letters 14.4: 045002. DOI: 10.1088/1748-9326/aafab8
- Seto K. C., S. Dhakal, A. Bigio, H. Blanco, G. C. Delgado, D. Dewar, L. Huang, A. Inaba, A. Kansal, S. Lwasa, J. E. McMahon, D. B. Müller, J. Murakami, H. Nagendra, and A. Ramaswami, 2014: Human Settlements, Infrastructure and Spatial Planning. In: Climate Change 2014: Mitigation of Climate Change. Contribution

of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schröder, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
- UNDESA (2019) World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420). New York: United Nations.

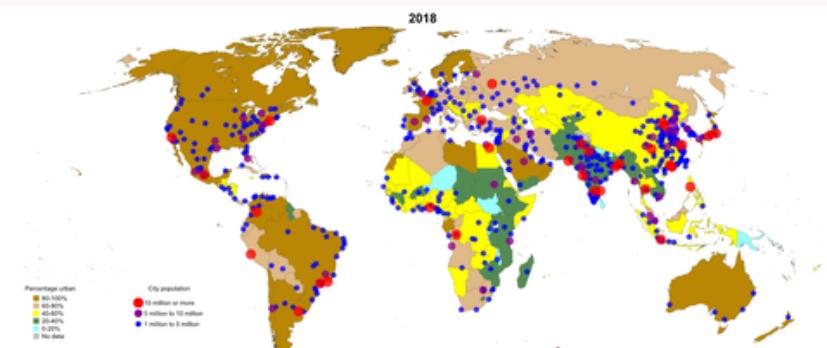
semanticClimate annotation

WGII,WGIII

urbanization

In the WGI report, urbanization is used to mean the process of soil sealing with the change of natural land cover to built environment and urban areas, together with its associated albedo changes, and increased surface runoff and elevated warming.

semanticClimate annotation



From Wikipedia

Translations

- HI: শহরীকরণ

WGI

V

values and beliefs

Fundamental attitudes about what is important, good, and right; strongly held principles or qualities intrinsically valuable or desirable, often enshrined in laws, traditions, and religions.

Examples include human rights, subsistence, and equitable distribution of costs and benefits of climate policies (Hulme, 2009, 2018; Nakashima et al., 2012; UNFCCC, 1992; UN Universal Declaration of Human Rights, 1948).

semanticClimate annotation

WGII

variable renewable energy

Renewable energy sources such as wind and solar energy whose output is determined by weather, in contrast to ‘dispatchable’ generators that adjust their output as a reaction to economic incentives.

Variable renewables have also been termed intermittent, fluctuating, or non-dispatchable. (Hirth, 2013)

Parent-term

- Renewable energy (RE)

References

- Hirth, L. 2013: The Market Value of Variable Renewables: The Effect of Solar and Wind Power Variability on their Relative Price. Energy Econ. 38, 218–236.

semanticClimate annotation

WGIII

VRE

vector-borne disease

Illnesses caused by parasites, viruses and bacteria that are transmitted by various vectors (e.g.

mosquitoes, sandflies, triatomine bugs, blackflies, ticks, tsetse flies, mites, snails and lice)(UNEP 2018)

semanticClimate annotation

WGII

ventilation

The exchange of ocean properties with the atmospheric *surface layer* such that property concentrations are brought closer to equilibrium values with the *atmosphere* (AMS, 2000), and the processes that propagate these properties into the ocean interior.

References

- AMS, 2021: Glossary of Meteorology. American Meteorological Society (AMS), Boston, MA, USA. Retrieved from:
<http://glossary.ametsoc.org>.

semanticClimate annotation

WGI,WGII
ocean

verification

'The process of formal verification of reports, for example, the established approach to verify national communications and national inventory reports to the UNFCCC' (UN REDD, 2009).

Parent-term

- Measurement, Reporting and Verification (MRV)

semanticClimate annotation

vertical land motion

The change in height of the land surface or the sea floor and can have several causes in addition to elastic deformation associated with contemporary changes in *gravity, rotation and viscoelastic solid Earth deformation (GRD)* and viscoelastic deformation associated with *glacial isostatic adjustment (GIA)*.

Subsidence (sinking of the land surface or sea floor) can, for instance, occur through compaction of alluvial sediments in deltaic regions, removal of fluids such as gas, oil, and water, or drainage of peatlands. Tectonic deformation of the Earth's crust can occur as a result of earthquakes and volcanic eruptions.

semanticClimate annotation

WGI
VLM

very short-lived halogenated substances

Very short-lived halogenated substances (VSLSs) are considered to include source gases (very short-lived halogenated substances present in the *atmosphere* in the form they were emitted from natural and *anthropogenic* sources), halogenated product gases arising from source gas degradation, and other sources of *tropospheric* inorganic halogens.

VSLSs have tropospheric *lifetimes* of around 0.5 years or less.

semanticClimate annotation

WGI
VSLSs

volatile organic compounds

Important class of organic chemical air pollutants that are volatile at ambient air conditions.

Other terms used to represent VOCs are hydrocarbons (HCs), reactive organic gases (ROGs) and non-methane volatile organic compounds (NMVOCs). NMVOCs are major contributors – together with nitrogen

oxides (NO_x), and carbon monoxide (CO) – to the formation of photochemical oxidants such as ozone (O₃).

Sub-terms

- Biogenic volatile organic compounds (BVOCs)

semanticClimate annotation

From Wikipedia

Translations

- HI: वाष्णवील कार्बनिक यौगिक

WGI

VOCs

vulnerability

The propensity or predisposition to be adversely affected.

Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

semanticClimate annotation

WGI,WGIII,WGII

vulnerability index

A metric characterising the vulnerability of a system.

A climate vulnerability index is typically derived by combining, with or without weighting, several indicators assumed to represent vulnerability.

semanticClimate annotation

WGII

W

walker circulation

Direct thermally driven zonal overturning circulation in the *atmosphere* over the tropical Pacific Ocean, with rising air in the western and sinking air in the eastern Pacific.

semanticClimate annotation

WGI

water-borne diseases

Illnesses transmitted through contact with, or consumption of, unsafe or contaminated water.

(UNEP, 2018)

semanticClimate annotation

WGII

water cycle

The cycle in which water evaporates from the ocean and the land surface, is carried over the Earth in atmospheric circulation as water vapour, condenses to form clouds, precipitates over the ocean and land as rain or snow, which on land can be intercepted by trees and vegetation, potentially accumulating as snow or ice, provides runoff on the land surface, infiltrates into soils, recharges groundwater, discharges into streams, and ultimately, flows into the oceans as rivers, polar glaciers and ice sheets, from which it will eventually evaporate again.

The various systems involved in the hydrological cycle are usually referred to as hydrological systems.

semanticClimate annotation

WGI

water mass

A body of ocean water with identifiable properties (temperature, salinity, density, chemical tracers) resulting from its unique formation process.

Water masses are often identified through a vertical or horizontal extremum of a property such as salinity. North Pacific Intermediate Water (NPIW) and Antarctic Intermediate Water (AAIW) are examples of water masses.

semanticClimate annotation

WGI

water security

The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability (UN-Water, 2013).

References

- UN-Water, 2013. <https://www.unwater.org/publications/water-security-infographic/>

semanticClimate annotation

WGII,WGI

water-use efficiency

Carbon gain by photosynthesis per unit of water lost by evapotranspiration.

It can be expressed on a short-term basis as the ratio of photosynthetic carbon gain per unit transpirational water loss, or on a seasonal basis as

the ratio of net primary production or agricultural yield to the amount of water used.

semanticClimate annotation

WGII

wave setup

Time-mean sea level elevation due to wave energy dissipation.

semanticClimate annotation

WGI

weathering

The gradual removal of atmospheric *carbon dioxide* (CO_2) through dissolution of silicate and carbonate rocks.

Weathering may involve physical processes (mechanical weathering) or chemical activity (chemical weathering).

semanticClimate annotation

WGI,WGII

well-being

A state of existence that fulfils various human needs, including material living conditions, meaningful social and community relationships and quality of life, as well as the ability to pursue one's goals, to thrive, and feel satisfied with one's life.

Ecosystem well-being refers to the ability of *ecosystems* to maintain their diversity and quality.

Sub-terms

- *Eudaimonic*
- *Hedonic*

semanticClimate annotation

WGIII,WGII

well-mixed greenhouse gas

A *greenhouse gas (GHG)* that has an atmospheric *lifetime* long enough (greater than several years) to be homogeneously mixed in the *troposphere*, and as such the global average mixing ratio can be determined from a network of surface observations.

For many well-mixed greenhouse gases, measurements made in remote regions differ from the global mean by < 15%.

semanticClimate annotation

WGI

West African monsoon

The West African monsoon (WAfriM) is a seasonal reversal in wind and precipitation whose domain includes Benin, Burkina-Faso, northern Cameroon, Cape Verde, northern Central African Republic, Chad, Gambia, Ghana, Guinea, Guinea Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

The WAfriM is characterized by the northward progression from May to September of moist low-level south-westerlies from the Gulf of Guinea. In May and June, rainfall essentially remains along the Guinean coast with a maximum occurring near 5°N, followed by a sudden decrease of rainfall, marking the ‘short dry season’ in the Guinean coast and the monsoon onset in the Sahel. Then rainfall continues to progress northward up to about 18–20°N, with a maximum near 12°N in late August/September, until it retreats starting from October towards the Guinean coast for a second maximum. Further details on how WAfriM is defined and used throughout the Report are provided in Annex V.

Parent-term

- Global monsoon

semanticClimate annotation

WGI
WAfriM

wetland

Land that is covered or saturated by water for all or part of the year (e.g., *peatland*).

semanticClimate annotation

WGII,WGI

wind energy

Kinetic energy from airflow arising from the uneven heating of the Earth's surface.

The wind's kinetic energy is converted to mechanical shaft energy and electricity by a wind turbine, a rotating machine. A wind farm, wind project, wind park, or wind power plant is a group of wind turbines interconnected to a common utility system through a system of transformers, distribution lines, and (usually) one substation.

semanticClimate annotation

WGIII

X
↑

Y

Younger Dryas

The period from approximately 12.9 to 11.7 ka (thousand years before 1950), during the *last deglacial transition*, characterized by a temporary return to colder conditions in many locations, especially around the North Atlantic.

semanticClimate annotation

WGI

Z

zero emissions commitment

The zero emissions commitment is an estimate of the subsequent *global warming* that would result after *anthropogenic emissions* are set to zero.

It is determined by both inertia in physical *climate system* components (*ocean, cryosphere, land surface*) and *carbon cycle* inertia. In its widest sense it refers to emissions of each climate *forcer* including *greenhouses gases, aerosols* and their *precursors*. The climate response to this can be complex due to the different time scale of response of each climate forcer. A specific subcategory of zero emissions commitment is the Zero CO₂ Emissions Commitment which refers to the climate system response to CO₂ emissions after setting these to net zero. The CO₂-only definition is of specific use in estimating *remaining carbon budgets*.

Parent-term

- Climate change commitment

semanticClimate annotation

WGI, WGIII

Wind energy « WGIII »

Kinetic energy from airflow arising from the uneven heating of the Earth's surface. The wind's kinetic energy is converted to mechanical shaft energy and electricity by a wind turbine, a rotating machine. A wind farm, wind project, wind park, or wind power plant is a group of wind turbines interconnected to a common utility system through a system of transformers, distribution lines, and (usually) one substation.

semanticClimate annotation

WGIII

displacement

The involuntary movement, individually or collectively, of persons from their country or community, notably for reasons of armed conflict, civil unrest, or natural or human-made disasters (adapted from IOM, 2011).

semanticClimate annotation

WGII
of humans
Internal

impact assessment

The practice of identifying and evaluating, in monetary and/or non-monetary terms, the effects of *climate change* on natural and *human systems*.

semanticClimate annotation

climate change

pH

A dimensionless measure of the acidity of a dilute solution (e.g., seawater) based on the activity, or effective concentration, of hydrogen ions (H^+) in the solution.

pH is measured on a logarithmic scale where $pH = -\log_{10}(H^+)$. Thus, a pH decrease of 1 unit corresponds to a 10-fold increase in the acidity, or the activity of H^+ .

semanticClimate annotation

WGII,WGI